CHNOLOGY DEPT,

PUBLIC LIBRARY
OCT 31 1952
DETROIT

Gas Journal

Vol. 272. 104th Year. LONDON, OCTOBER 15, 1952. No. 4663. Price 1/3

Registered as a Newspaper

DEMPSTERS of MANCHESTER

(R. & J. DEMPSTER, LIMITED)

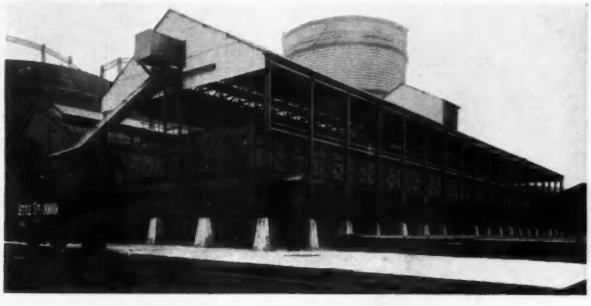
have the experience and technical ability to supply

MODERN PURIFICATION PLANT

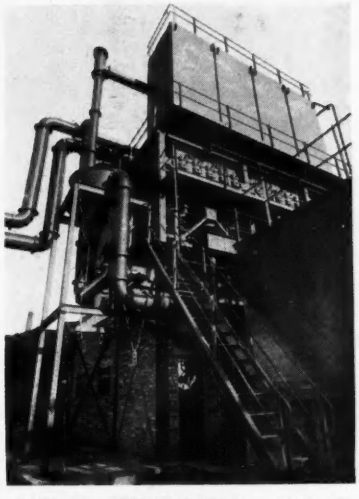
of high quality and efficiency

The hallmark of high quality plant.

Types of Purifiers we supply are here illustrated:—



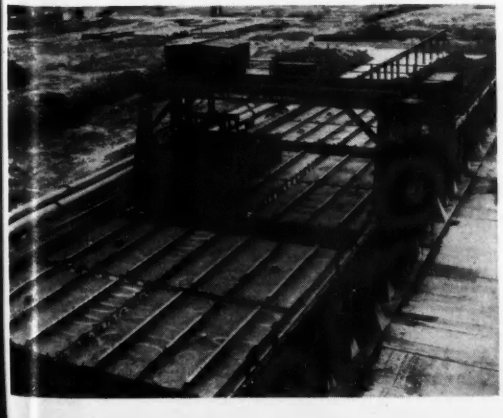
DRY PURIFIERS OF THE NORMAL TYPE
(These may be at ground level or elevated on structures)



LIQUID PURIFICATION PLANT
(Manchester Type)

We maintain a complete and well-balanced organisation for the design and construction of plant for the Gas and Chemical Industries, including: BY-PRODUCT PLANT, CONDENSERS, DETARRERS, GASHOLDERS, GAS VALVES and CONNECTIONS, IRON CASTINGS, PURIFIERS, STILLS, TANKS, WASHERS, WATER-GAS PLANT, and WELDED and RIVETED STEELWORK.

TRAY PURIFIERS (Carr & Litler Patent No. 628338)
(Photograph by courtesy of the N.E. Gas Board)



R. & J.
DEMPSTER
Ltd.

Constructional Gas & Chemical Engineers
GAS PLANT WORKS · NEWTON HEATH
MANCHESTER · 10

London Office: 34 Victoria Street, S.W.1.

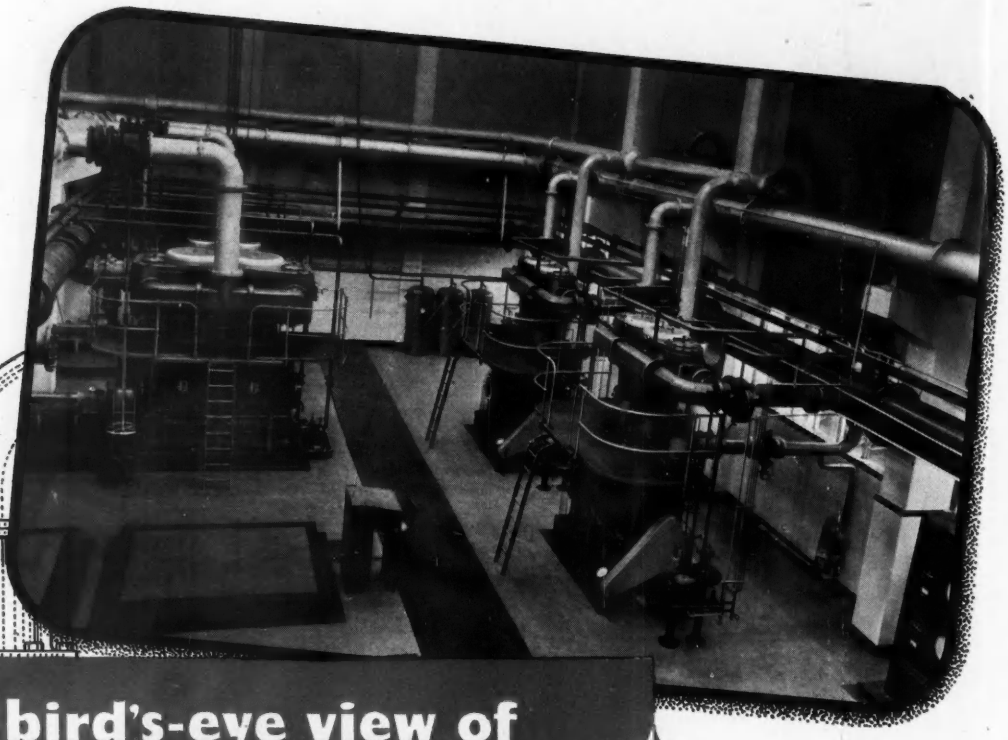


Illustration by kind permission of R. J. Barritt, Esq., Div. Carbonisation Manager.

A bird's-eye view of 14,000,000 cubic feet per day

★

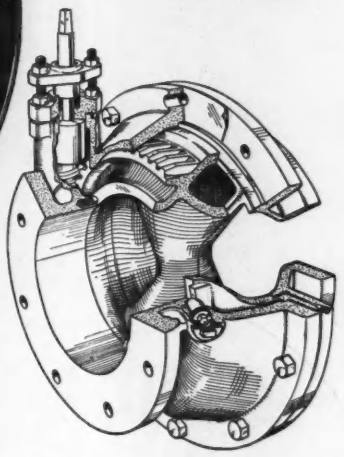
THAT is the capacity of these four "DONKIN" Gas Compressors, installed at Nantgarw Coke Ovens of the N.C.B., South Western Division, with foundations for another machine to pass a further 6,000,000 cubic feet per day.

★

RELIABILITY, STURDINESS AND FIRST-CLASS WORKMANSHIP are the keynotes of these machines, which are required to withstand long periods of continuous operation. When requiring a Gas Compressor be sure to get more than a bird's-eye view of a "DONKIN" unit. Let our engineers show you the picture from all angles.

The
BRYAN DONKIN
COMPANY LIMITED
CHESTERFIELD
LONDON · MANCHESTER
— Members of the Society of British Gas Industries —

CORT'S "Towndrow" valve



A 1952 gas valve for Medium & High Pressures AT LOW PRESSURE PRICE!

GAS TIGHTNESS maintained against pressure from either direction.

ALL WORKING PARTS sealed from the gas stream.

MATING FACES of the gate and seat always in contact, clean and greased.

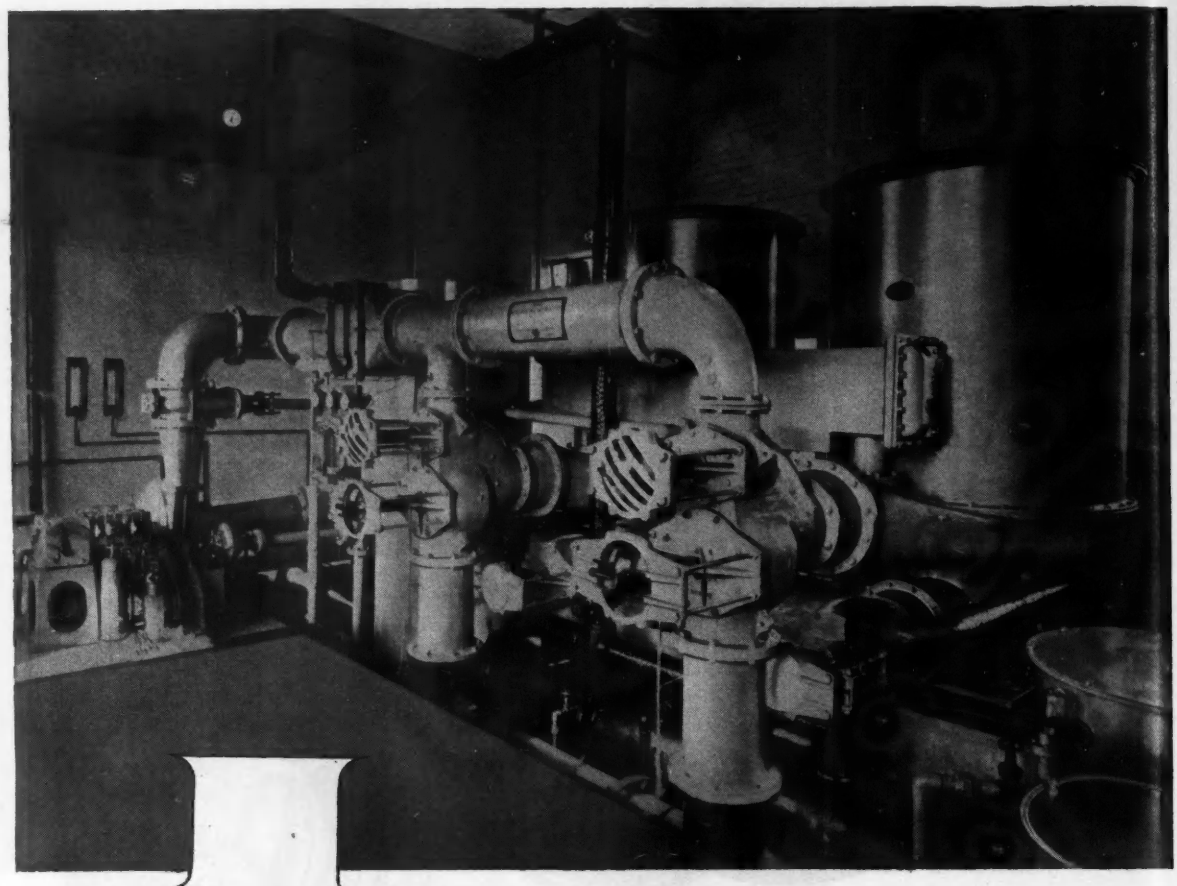
ADJUSTABLE WEDGES ensure equal distribution of pressure on the gate.

NO POCKETS exist in the bore to accumulate foreign matter.

STREAMLINED PORTS with larger area than the nominal bore, offer negligible resistance to flow.

Robert CORT & Son Ltd. Reading

Tel. 5046 (3 LINES)



100% recovery of Benzole

HAS BEEN RECORDED

100% recovery of Benzole has been recorded in the Gas Industry where Sutcliffe Speakman plants of the type illustrated are already installed.

These recovery plants are the result of over twenty years' experience in the manufacture and industrial use of Active Carbon. Their capacities range from 250,000 cu. ft. per day. Entirely automatic and with few moving parts, they are compact, clean in operation, and economical to run. Their initial cost, too, compares favourably with that of other recovery systems. In every way they are the most profitable investments. We are always ready to draw up a complete balance sheet for Benzole recovery in any specific undertaking of the Gas Industry.

to cut Benzole wastage to a minimum, consult

SUTCLIFFE SPEAKMAN

SUTCLIFFE SPEAKMAN AND COMPANY LIMITED, Leigh, Lancashire

Telephone: Leigh 94. London Office: 2 Caxton Street, Westminster, S.W.1. Telephone: ABBEY 3085

The Second

WIGGINS GASHOLDER

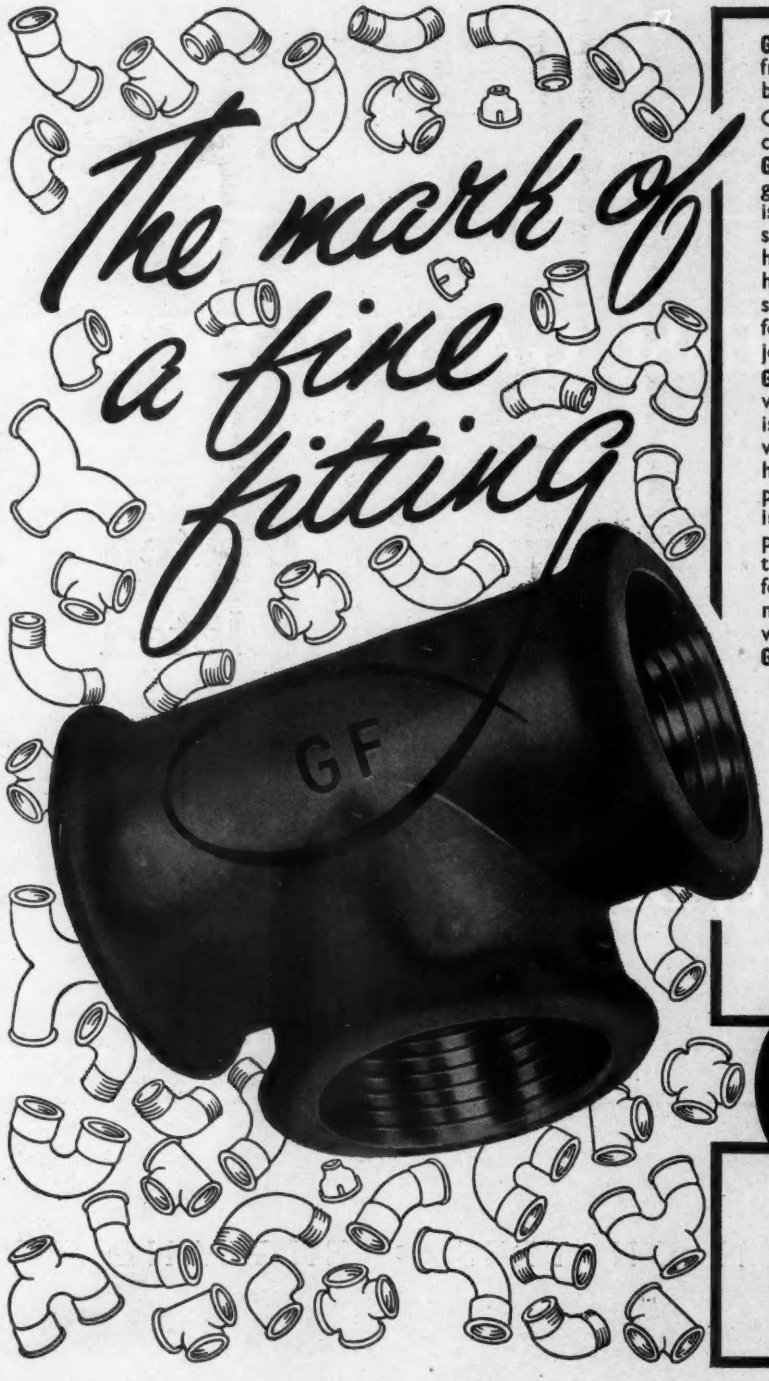
to be built in the United Kingdom has been completed at an oil refinery by

Ashmore, Benson, Pease & Co

ABP

STOCKTON-ON-TEES ENGLAND

The mark of a fine fitting



GF Fittings are supplied from stock either in black or galvanised.

Our black fittings are coated with the special **GF** varnish which not only gives them their characteristic clean and untarnished surface but ensures that however long **GF** Fittings have to be carried in stock they are always fit for installation into a new job.

GF Fittings sold as galvanised are all hot galvanised by the latest method, which gives a brilliant, homogeneous coating of pure zinc of about 0.1 mm. in thickness. This gives a particularly efficient protection against corrosion for many years under normal cold and warm water conditions and the **GF** galvanised coating remains perfectly sound under even the rough handling to which tube fittings are sometimes submitted.

The quality of a GF Fitting is remembered long after its cost is forgotten.

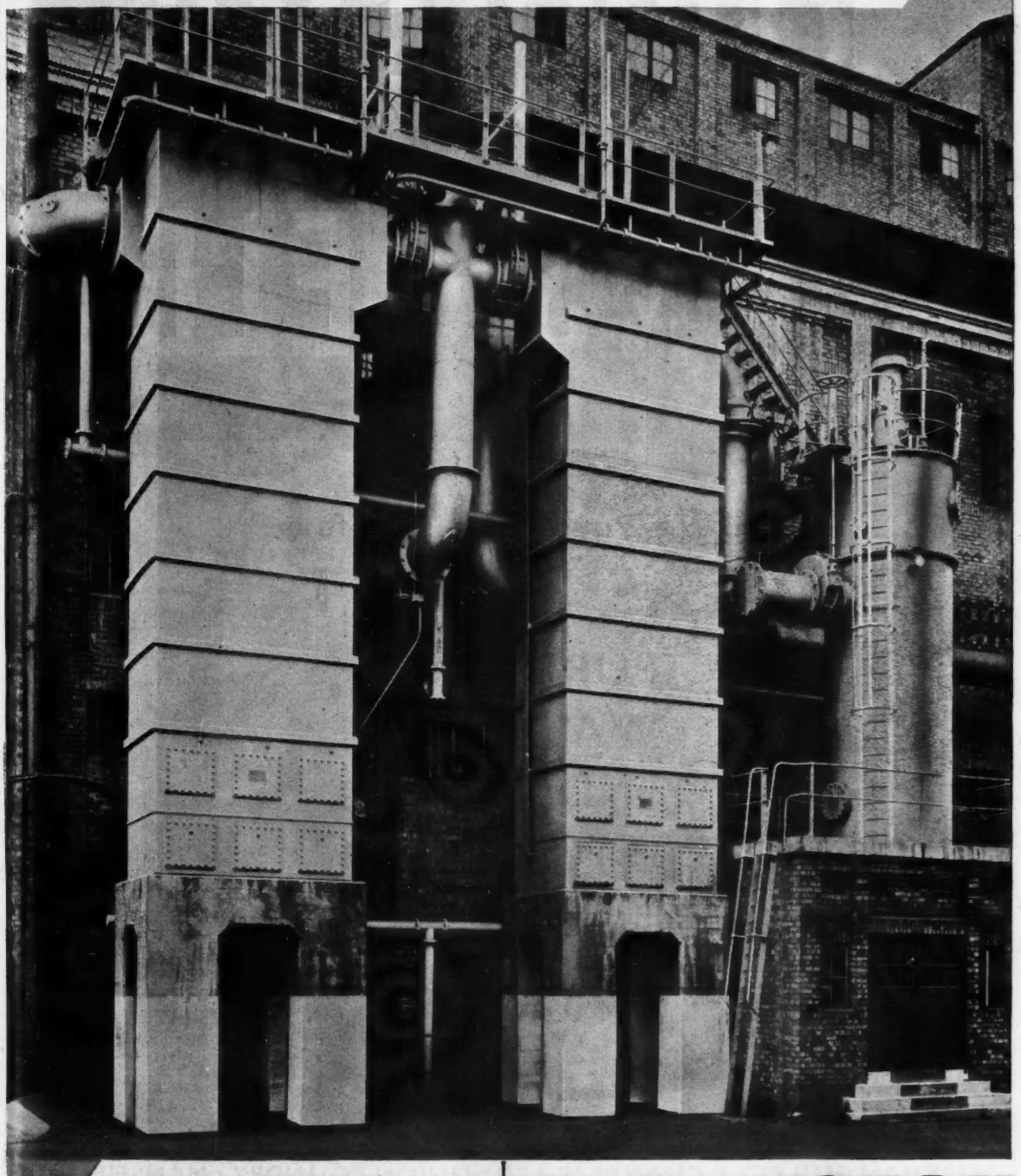
DISTRIBUTORS

LE BAS TUBE
COMPANY LIMITED

City Wall House,
129 Finsbury Pavement,
London, E.C.2
Warehouses :
London, Manchester,
Glasgow, Belfast.
Made at Britannia Works, Bedford.

MORE WHESSOE PLANT AT WANDSWORTH

Vertical Tube Condensers and W.W-D. Electro-Detarrer at South Eastern Gas Board, Wandsworth Works. This plant built to the order of the Woodall-Duckham Company, is for 5.3 Mill. cu. ft. I.V.C. gas per day.



WHESSOE | **DARLINGTON**

LONDON OFFICE · 25 VICTORIA ST. S.W.1

W/RP/021

KIRKHAMS of MANSFIELD

invite your enquiries for

GAS PLANT

PURIFIERS
WASHERS
CONDENSERS
PREHEATERS
BENZOL PLANTS

KIRKHAM, HULETT & CHANDLER, LTD · UNION FOUNDRY · MANSFIELD

STAFFORD HOUSE · NORFOLK STREET · STRAND · LONDON · W.C.2

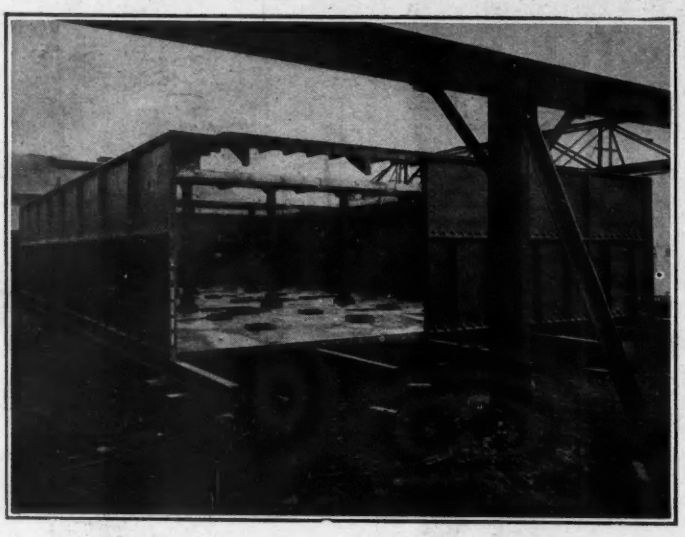
MANSFIELD 1256-7 TEMPLE BAR 9910

STAFFORDSHIRE BEST CHARCOAL TINNED SHEETS & TIN-PLATES, HEAVILY COATED WITH PURE TIN BY A SPECIAL PROCESS.

E. C. & J. KEAY, LIMITED

CONSTRUCTIONAL ENGINEERS AND IRONFOUNDERS

Head Office:
"Runnymede,"
Stratford Road,
Henley-in-Arden,
Warwickshire



Also Offices
at
LONDON
SOUTHAMPTON

Cast Iron Purifiers temporarily erected in our Works prior to despatch

Specialists in TANKS, Steel or Cast-Iron, Riveted or Welded, etc.
JAMES BRIDGE WORKS, DARLASTON

an
ACCURATE
Indicating Thermostat
This Instrument which has a differential of 1% of the scale range and is fitted with 5 amp Micro Switch, is available within the range of -240°F to +400°F.
The ACCURATE RECORDING INSTRUMENT Co
(ARIC LTD)
ARIC WORKS . GARTH ROAD . LOWER MORDEN . SURREY . DERwent 2211/2/3

DESIGN FOR EFFICIENCY

"CAPITAL" Equipment BY

GIBBONS

Designers & Manufacturers of:
FURNACES AND HANDLING PLANT, GAS PRODUCERS, COKE OVENS, GAS WORKS PLANT, DRESSLER TUNNEL KILNS AND REFRACTORIES

IBBONS BROS. LTD., DIBDALE WORKS, DUDLEY, WORCS.

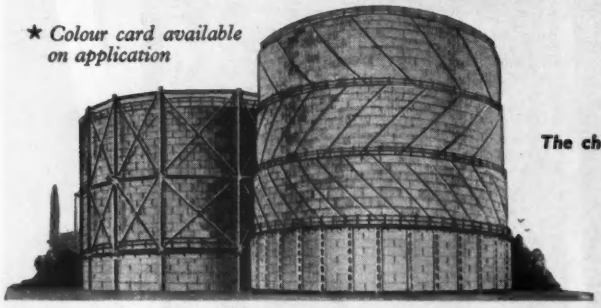
All-the-year round

PROTECTION . . .

Can any paint withstand extremes of temperature the whole year through? Yes, when it's AVARC Silica-Graphite Paint, because it expands and contracts without cracking.

AVARC Silica-Graphite paints, made to our own special formulæ, have been accepted as standard paints for iron and steelwork by Gas Undertakings, large Industrial Corporations, Railway Companies, Power Station Authorities and public undertakings throughout the world. With AVARC Paints the Silica-Graphite base has no chemical action with the vehicle. The paint dries with a hard leathery skin which allows for expansion and contraction of the metal in all weathers.

★ *Colour card available on application*



The cheapest paint per year of service

AVARC Silica – Graphite **PAINT**

C. R. AVERILL LIMITED ALYN MILLS, CAERGWRLE, WREXHAM, NORTH WALES.

Tel: Caergwrle 14. Cable Address: Crucigraph, Caergwrle.

LONDON OFFICE: 52 BEDFORD ROW, W.C.1. Tel: HOLborn 5112. AV1552

Eliminate constantly burning by-passes

and reduce Public Lighting costs by installing Newbridge 'Comets'

In these difficult times all Public Lighting Engineers are faced with the question of providing up-to-date automatic lighting control and, at the same time, keeping maintenance costs to an absolute minimum. HORSTMANN GAS CONTROLLERS AND COMETS provide the answer to this problem. They are well known for their reliability and the economies which can be effected by their use merit the attention of all connected with public lighting.

Most by-passes burn at least ½ cu.ft per hour

'Comets' consume less than 1 cu.ft. per year

a HORSTMANN product

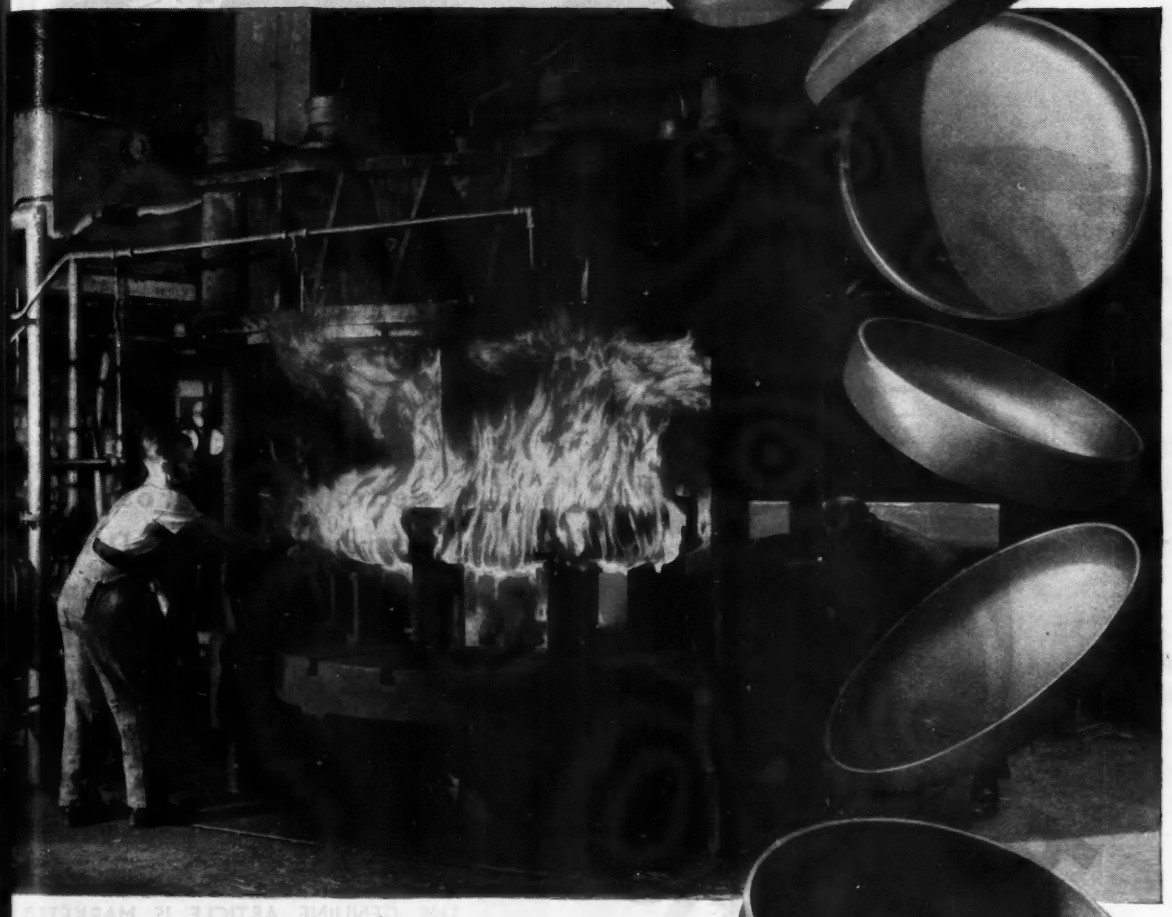
'Comets' eliminate the need for constantly burning by-passes and the savings effected by their use will soon offset the initial installation cost. The type 3A/UNI Controller with MK. IX. 'Comet,' as illustrated, represents an ideal unit for the automatic control and ignition of upright type lamps.

Send today for full details.

The HORSTMANN GEAR CO. LTD.

NEWBRIDGE WORKS • BATH • ENGLAND • TEL: 7241 GRAMS. HORSTMANN BATH

DISHED ENDS ?



OUT of the furnace and into the press goes the partially finished end . . . up comes the powerful press ring to form the required flange . . . and another Dished and Flanged End is ready.

Furnace and press capacity is available at Harvey's Greenwich works for the pressing of both light and heavy Dished and Flanged Ends. Diameters range from 6" to 9' 0", edges can be prepared for either welding or riveting. Manufacturers providing their own metal can obtain prompt delivery of ends to specification. For details and tables showing dimensions available, send for List GJ 790.

Harvey

G. A. Harvey & Co. (London) Ltd. Woolwich Road, London, S.E.7

Denso

PERMANENTLY PLASTIC PROTECTION

provides all round protection against CORROSION

Denso Tape provides complete protection for pipes, mains, cables and all metalwork against the combined attacks of chemical and electrolytical corrosion. Permanently plastic—Denso forms a perfect gas- and water-tight seal that withstands the heaviest vibration. Ideal for temporary repairs — an aid to frost proofing.

THE GENUINE ARTICLE IS MARKETED ONLY UNDER THE NAME
"DENSO"
IMITATED BUT NOT EQUALLED

Write for full details of Denso Anti-corrosive and Sealing Products without obligation, from :—

WINN & COALES LTD.,

DENSO HOUSE, CHAPEL ROAD, LONDON, S.E.27.

Telephone : GIPsy Hill 4247/8. Telegrams : Denselte, Westnor, London

BETTER WELDS at lower cost

FAR LESS TIME AND MATERIALS REQUIRED

Much of the advantage gained by the use of high quality welding equipment can be thrown away—unless you also use top-grade rods and fluxes. ALDA rods and fluxes are the finest you can get. They include only those materials prepared to the formulæ of B.O.C metallurgists, or those proved by repeated tests to fulfil their specific purpose. All consignments are analysed before issue. As a result, you can rely on ALDA rods and fluxes every time—for better welds, made more quickly, and with the minimum consumption of essential materials. Use ALDA rods and fluxes—and *get* efficiency with economy.

FREE

. . . and very useful indeed!

The comprehensive Welding Guide and ALDA Data Sheet provides a list of 54 different rods and 21 different fluxes with full details of their applications and characteristics.
Also: Six different methods of removing flux residue, according to the types of metal involved.

WRITE NOW TO YOUR LOCAL B.O.C BRANCH FOR YOUR COPY

ALDA
WELDING RODS AND FLUXES

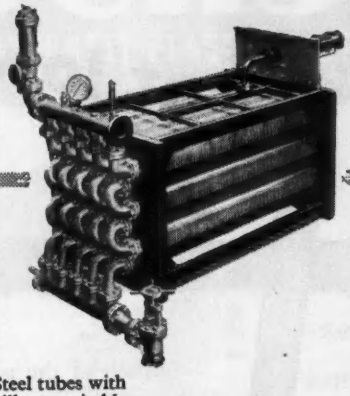
BOC **THE BRITISH OXYGEN CO LTD**

LONDON AND BRANCHES

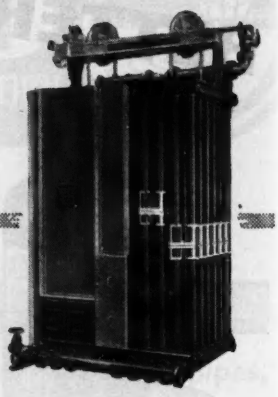
GREEN'S ECONOMISERS

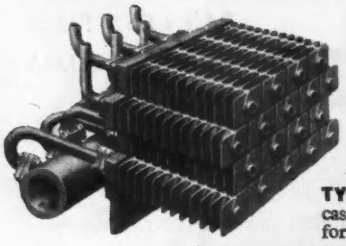
There is a Green's Economiser to suit every type and capacity of steam-raising unit. The three main types are illustrated here.

TYPE 25 Gilled cast-iron tubes : a compact economiser for pressures up to 650 lb. per sq. inch.



VERTICAL TUBE TYPE Cast-iron vertical tubes : for a great variety of applications.





TYPE 12 Steel tubes with cast-iron gills : suitable for the highest pressures.

GREEN'S ECONOMISER

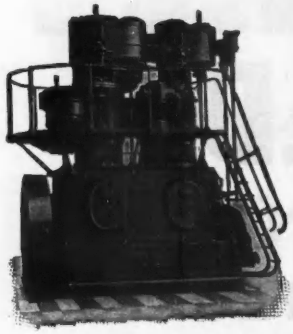
E. GREEN & SON LTD · WAKEFIELD · ENGLAND

Specialist makers of economisers for more than one hundred years

G.E. 71a

COMPRESSORS
& DRY VACUUM PUMPS FOR AIR OR GAS.

* * *



These double-acting cross-head type Compressors are provided with forced lubrication. They may be driven by any suitable power unit, as shown below, or by steam cylinders in tandem with the compressor cylinders making a self-contained unit, as shown on the left.

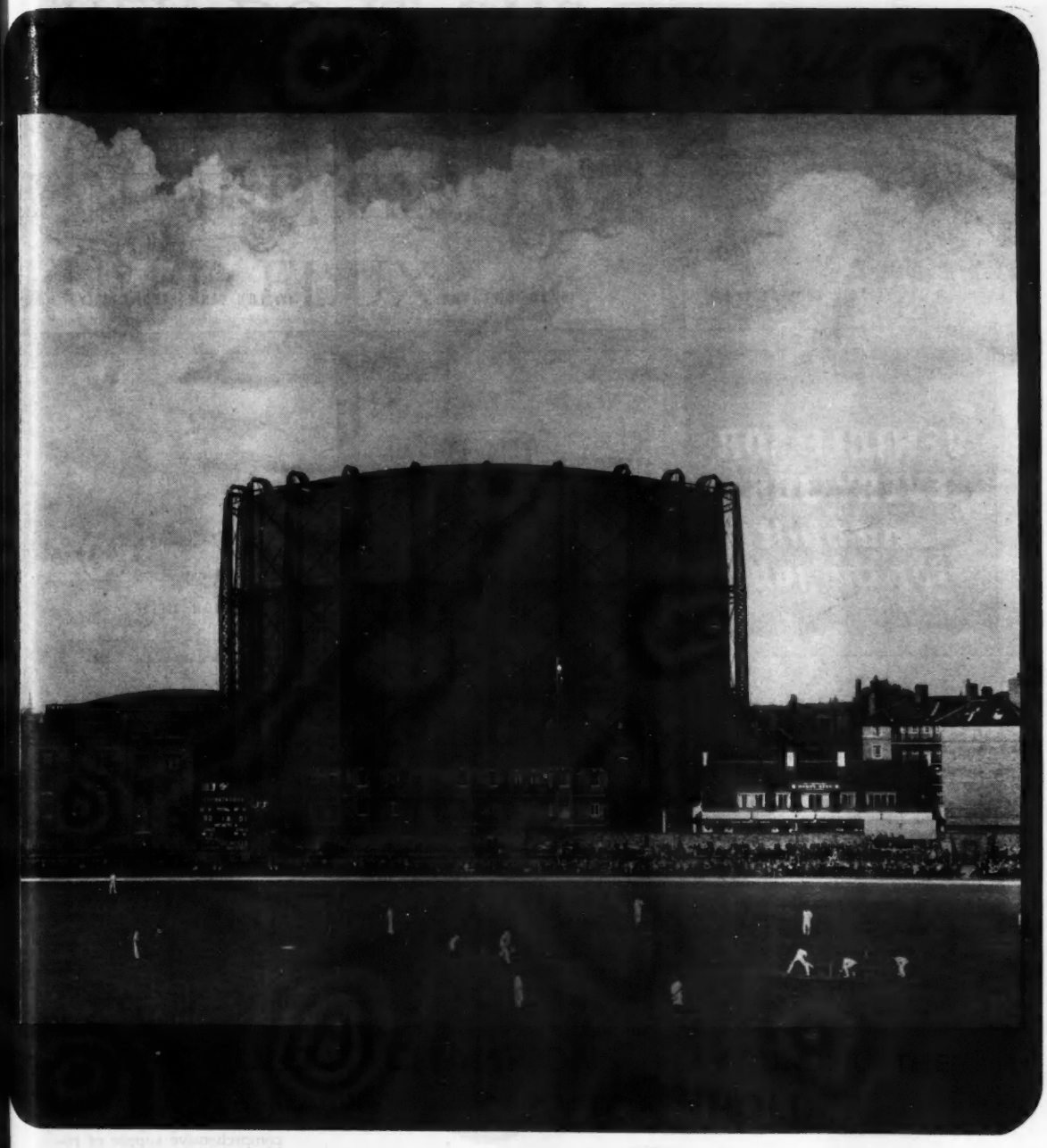
Single Stage. Pressures up to 40 lbs. per sq. in. Capacities up to 10,000 cu. ft. per min.

Two Stage. Pressures up to 120 lbs. per sq. in. Capacities up to 5,000 cu. ft. per min.

For particulars of these machines and for other types write (mentioning this journal) to:—

REAVELL & Co., LTD.,
Ranelagh Works, Ipswich.

Telegrams: "Reavell, Ipswich." Telephone Nos. 2124 & 2125 Ipswich.

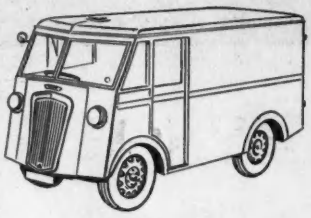


The 6 Million Frame Guided Gasholder at Kennington Oval, was reconstructed following war damage, by Claytons of Leeds ; in the background . . . the new 2 million Spiral Guided Holder, also erected by Claytons to replace another war-damaged Holder.

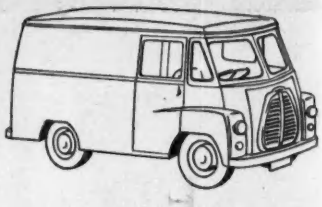
Gasholders of all Types by

CLAYTON SON & CO. LTD.
HUNSLET LEEDS YORKSHIRE

10 CWT EXPRESS DELIVERY VAN

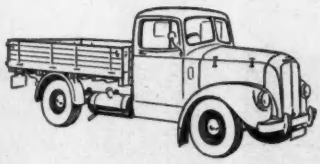


15/20 CWT VAN

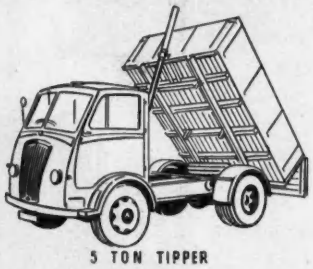


1½ TON VAN (EXPORT ONLY)

A VEHICLE FOR EVERY JOB *– and built for the job!*



1½, 3, & 5 TON TRUCKS



5 TON TIPPER

The Morris-Commercial range not only covers most transport needs but each vehicle has been designed, after a careful study of its owner's requirements, down to the smallest detail. They have in common a stamina that stands up to the toughest conditions of work and a reliability that keeps them earning longer than most others.

5-TON TRUCK

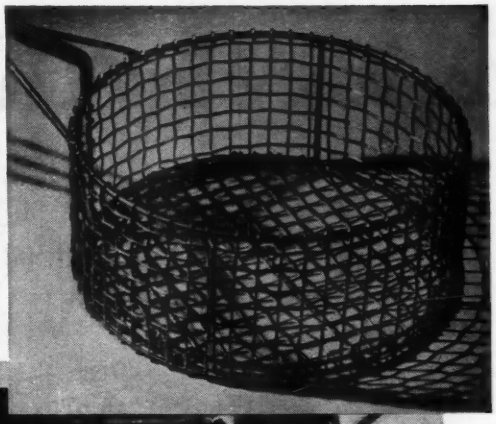
Morris-Commercial vehicles need the least service because they get the best! A nation-wide network of accredited service stations provides a comprehensive supply of replacement units, spares and maintenance by factory-trained mechanics—a service unsurpassed by any organisation in the country.

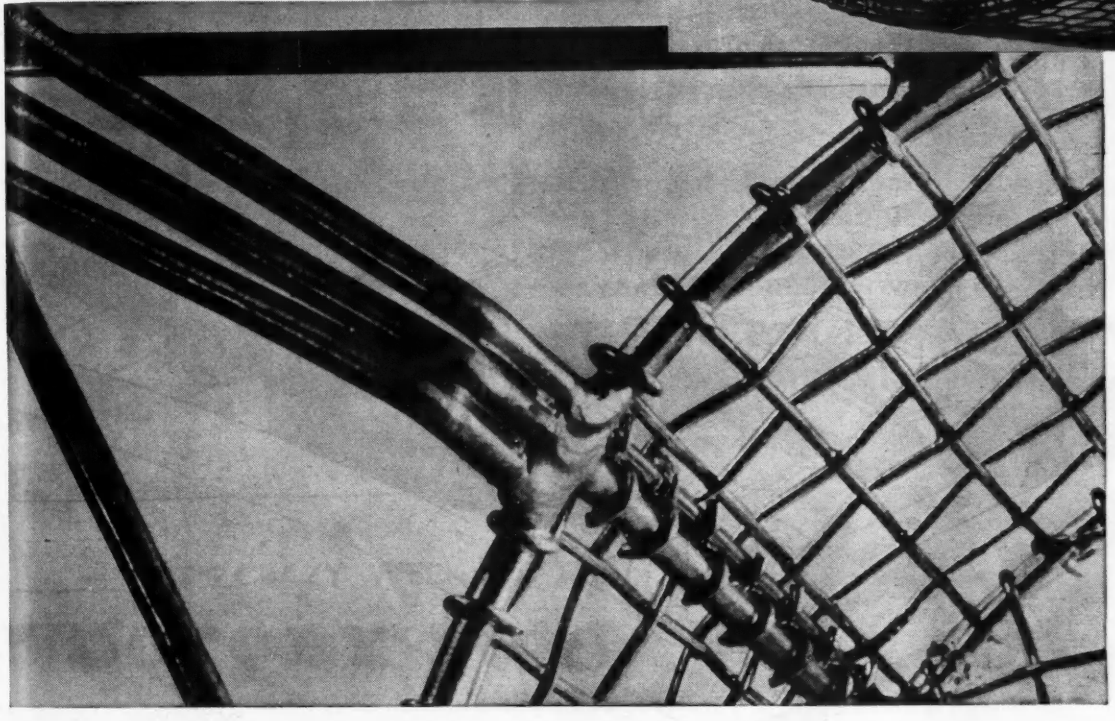
MORRIS-COMMERCIAL

MORRIS COMMERCIAL CARS LTD., ADDERLEY PARK, BIRMINGHAM, 8
Overseas Business: Nuffield Exports Ltd., Oxford and 41, Piccadilly, London, W.1

NUFFIELD PRODUCTS

THEY DO IT OUR WAY USING PURE TIN AND FRYSOL FUSED FLUX





FMF

Dip tinning of fabricated steel articles

In order to attain a smooth superfine finish free from pores and dewetting it is necessary to prepare surfaces carefully by pickling to remove oxide.

Selection of flux is equally important and the use of it in fused condition assists in wetting by tin and eliminating spitting upon immersion.

Cooling and washing technique profoundly affects the surface appearance.

FRY'S METAL FOUNDRIES LIMITED

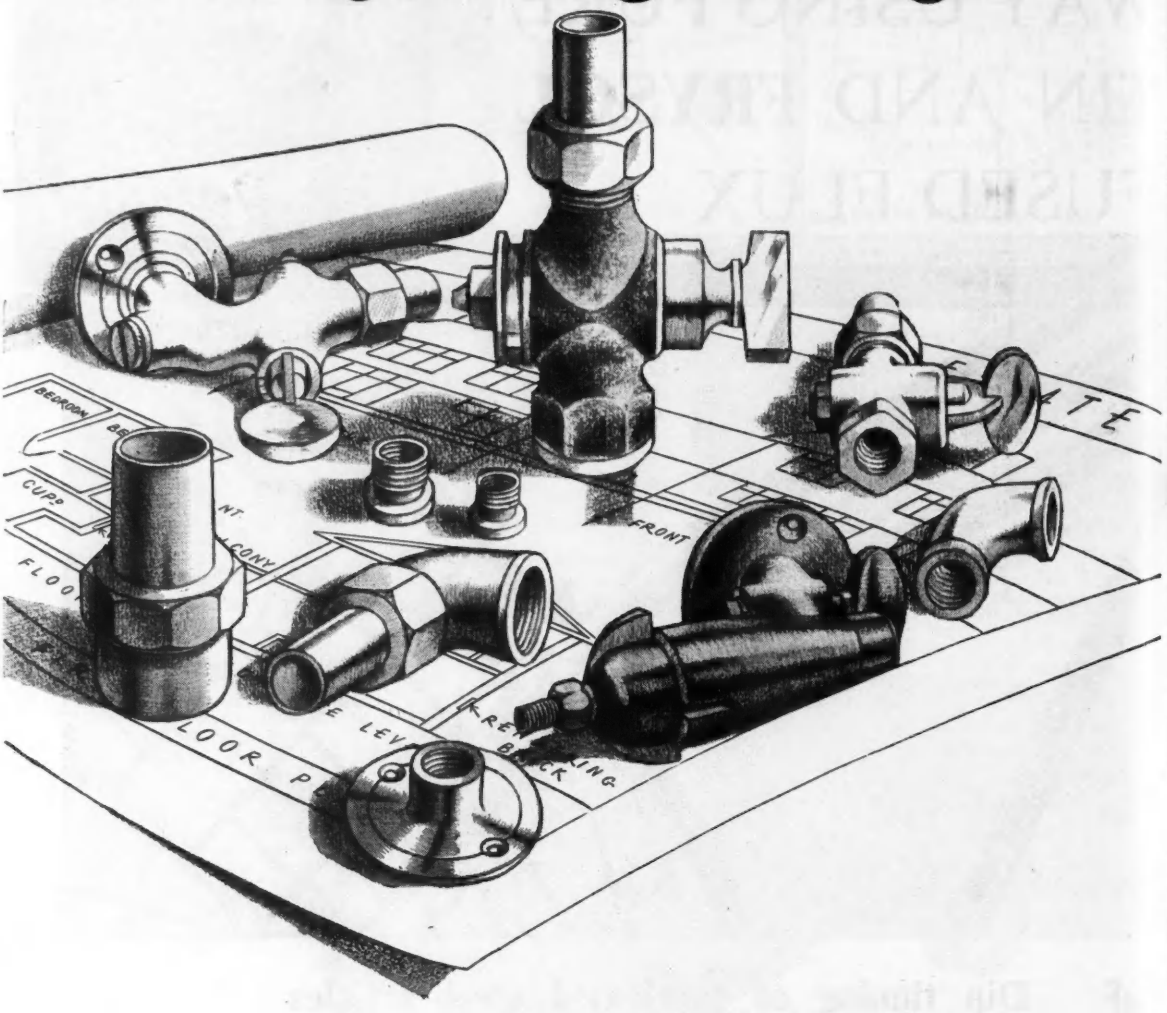
TANDEM WORKS · MERTON ABBEY · LONDON SW19 · MITCHAM 4023

BRANCHES AT MANCHESTER, GLASGOW, BRISTOL, BIRMINGHAM AND DUBLIN

Export Enquiries also welcome

B

Everything for gas

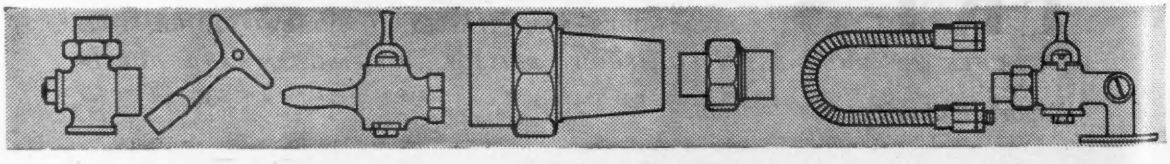


A small selection from the 200 gas fittings we manufacture. Send for a copy of our complete catalogue.

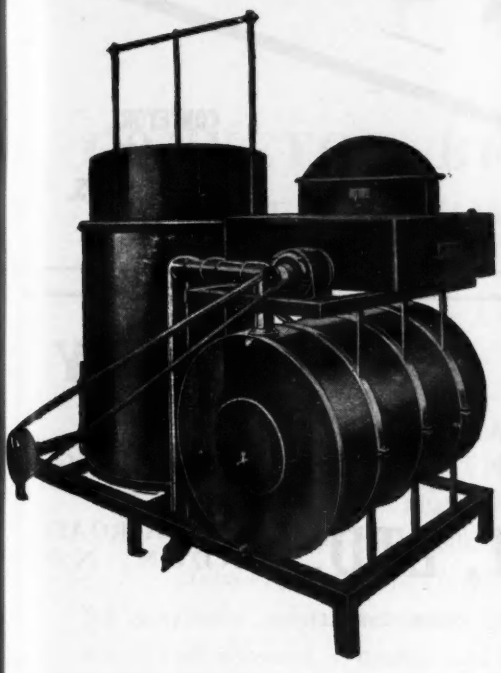
WILLEY & CO LTD. EXETER

GAS ENGINEERS

LONDON · MANCHESTER · LEICESTER · DARLINGTON



AEROGEN GAS GENERATORS



PETROL AIR: 300 B.T.U. per cubic foot
PRODUCER AND PETROL COMBINED: 480 B.T.U. per cubic foot

Suitable for Domestic Commercial and Industrial Appliances at Home or Abroad where Town's Gas is not readily available.

Outputs of Plants Range from 100 Cubic Feet to 15,000 Cubic Feet per hour

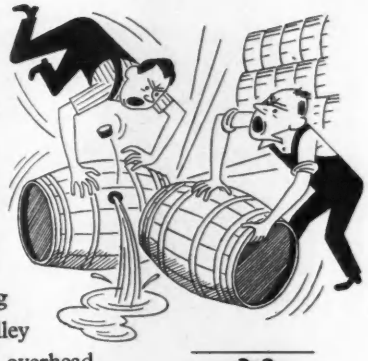
Full technical information can be obtained from:

THE AEROGEN CO. LTD.,
ALTON, HAMPSHIRE, ENGLAND

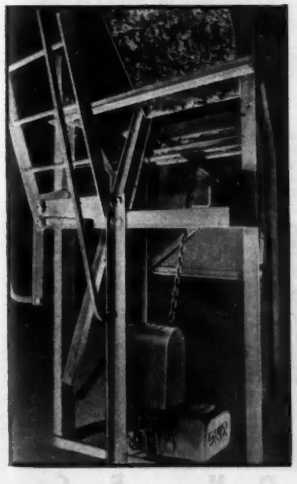
Telegrams: Aerogen, Alton, Hants. *Telephone: Alton* 2081

IT'S CRAZY WEEK AT THE

FACTORY FOLLIES



CRAZY week performances crop up even in otherwise well-run factories when it comes to lifting and shifting. And the fun-and-games holds down output and piles up costs. Cut out the humping and heaving with a My-Te-Min electric pulley block. Let work flow to where it is wanted by overhead conveyor. Then see the difference; more work space, less fatigue, less damage, bigger output. There's a KING installation for every need, from a single My-Te-Min to a full-scale conveyor system.



WHAT'S YOUR LIFTING-AND-SHIFTING PROBLEM?

(*left*) A KING 2½-ton Mammoth Electric Pulley Block—operated by remote control—handling a skip of coal in a gasworks.

WRITE FOR ILLUSTRATED LEAFLETS

KING REGISTERED TRADE MARK

CONVEYORS, CRANES, PULLEY BLOCKS

GEO. W. KING LTD., 25 WORKS, HITCHIN, HERTS. TEL: HITCHIN, 960. AND AT STEVENAGE.

COAL AND COKE SCREENING & SIZING PLANTS.

RETORT SETTINGS PRODUCERS, FURNACES REPAIRS.

GOODALL, CLAYTON & Co. LTD.
LEEDS.

CONVEYORS, ELEVATORS, BUNKERS, ROOFS, HOISTS, Etc.

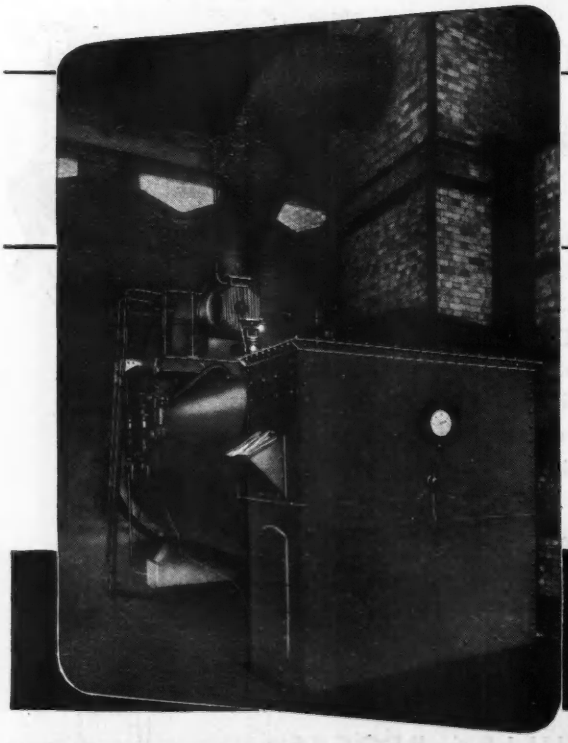
BELFO
BRITAIN'S BEST BELT FOOD

SELEK
METAL TO METAL JOINTING CEMENT

PLASTILOY
PLASTIC METALLIC PACKING

Sole Manufacturers: **GRANT & WEST, LTD.** 3, FURLONG ROAD LONDON, N.7

Selekjoina, Holway, London North 2160/2111



fuel saving---

We are at your service for the preparation of schemes for waste heat recovery, a direct way of reducing Fuel Consumption. Already over 3,000,000 tons of fuel are saved annually by the use of our Waste Heat Recovery Plant. May we investigate the potentialities for fuel-saving in your Works?

The illustration shows a Spencer-Bonecourt Waste Heat Boiler operating on a horizontal retort installation.

with a **SPENCER-BONECOURT waste heat boiler**

SPENCER-BONECOURT LIMITED
14, FETTER LANE, LONDON, E.C.4
Telephone: CENtral 0481/2 Telegrams: "Bonecourt, Fleet, London"

Silvertown

CONVEYOR BELTS AT BRUNSWICK WHARF POWER STATION, POPLAR

Conveyor plant at the new Brunswick Wharf power station has been designed, constructed and installed by International Combustion Ltd., embodying Silvertown belts as follows :—

(1) One 48″ x 7-ply belt 1,126′ 3″ long.
(2) Four 42″ x 6-ply belts totalling 2,067 ft.
(3) Seven 30″ x 5-ply belts totalling 5,299′ 6″.

Total length of belting : 8,492′ 9″.

All these belts carry coal, starting from the jetty cranes and delivering to bunkers and consumption points throughout the plant. One belt operates on a travelling bridge. Ash belts, also by Silvertown, will be installed at a later stage.

Photographs by courtesy of British Electricity Authority.

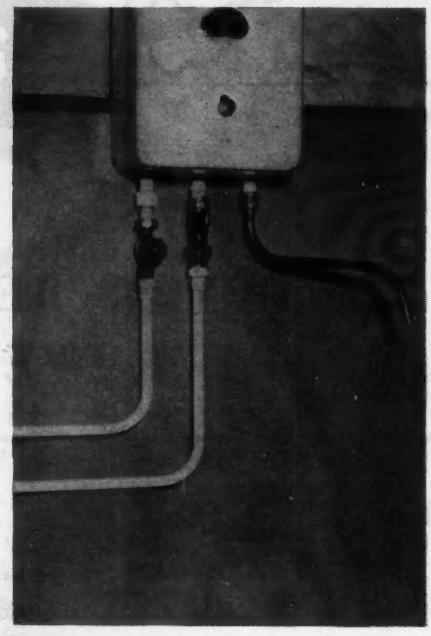
A contribution to Industrial Power by

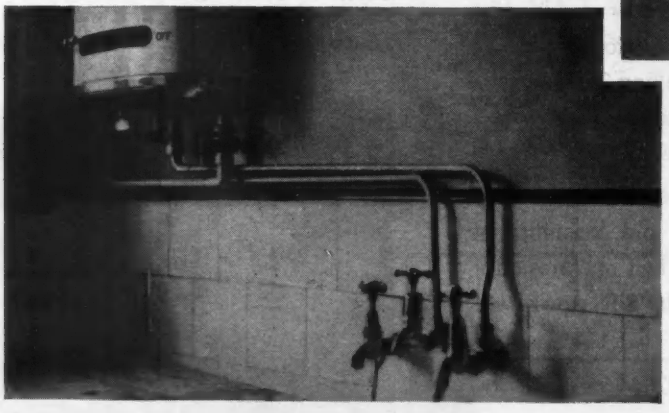
THE SILVERTOWN COMPANY
(The India Rubber Gutta-Percha & Tel. Wks. Co. Ltd.)
HERGA HOUSE, VINCENT SQUARE, LONDON, S.W.1.

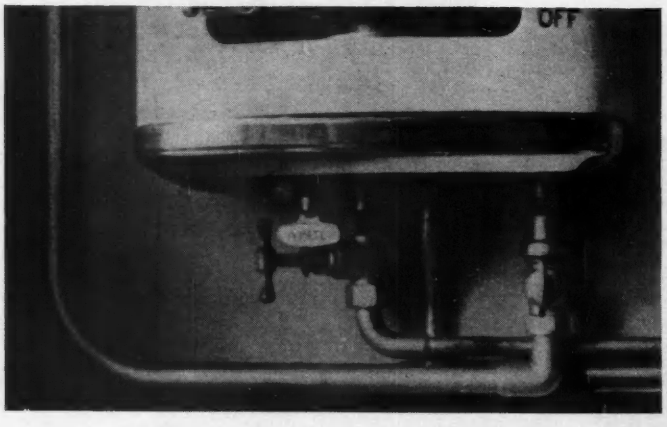
D.S.55

"Yorkshire" TUBES & FITTINGS

FOR GAS INSTALLATION PIPE LINES







Pipelines of "Yorkshire" Light Gauge Copper Tubes and "Yorkshire" Fittings are neat in appearance, permanently reliable, simple and quick to instal and show a definite saving in labour costs.

They are entirely leak-proof as the fittings are made from non-porous pressings, and the joints are unaffected by expansion, contraction and vibration. The smooth, full bore reduces friction and gives more uniform gas pressure, whilst the high resistance to corrosion eliminates maintenance work.

"Yorkshire" Tubes and "Yorkshire" Fittings also provide the ideal pipeline for gas service and carcassing work.

Photographs by courtesy of The Eastern Gas Board, Tottenham Division.

THE YORKSHIRE COPPER WORKS LTD.

LEEDS & BARRHEAD

Throughout the whole field of gas heating

from a simple panel fire for bedroom use, to a large scale overhead system for factory or town hall, there is a Bratt Colbran appliance perfectly suited to the purpose, each with its traditional characteristics of reliability, fine quality, and good design. On the Industrial side, Bratt Colbran (Infra-Red) Radiant Units built up in oven form, may be used for many drying and stoving processes.

Bratt Colbran

Specialists in domestic and industrial gas heating

BRATT COLBRAN LIMITED,
10 MORTIMER STREET, LONDON, W.1

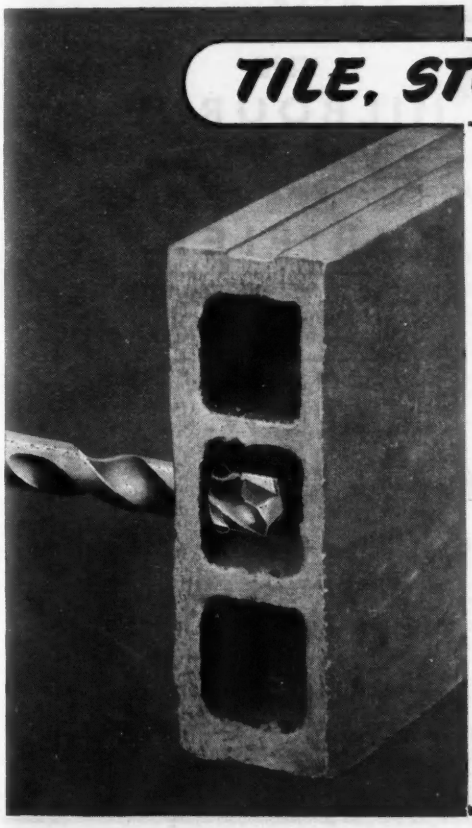
★ *The Portcullis 'Lutello' Gas Fire.*

★ *The Portcullis 'Camelot' Gas Fire.*

★ *Luminous Panel Overhead Gas Heaters in a factory.*

★ *A tunnel of Industrial Radiant units stoving enamelled washing machines.*

TILE, STONE or CAVITY BRICK



Drill Faster with
RAWLPLUG
DURIUM (REGD)
TIPPED DRILLS

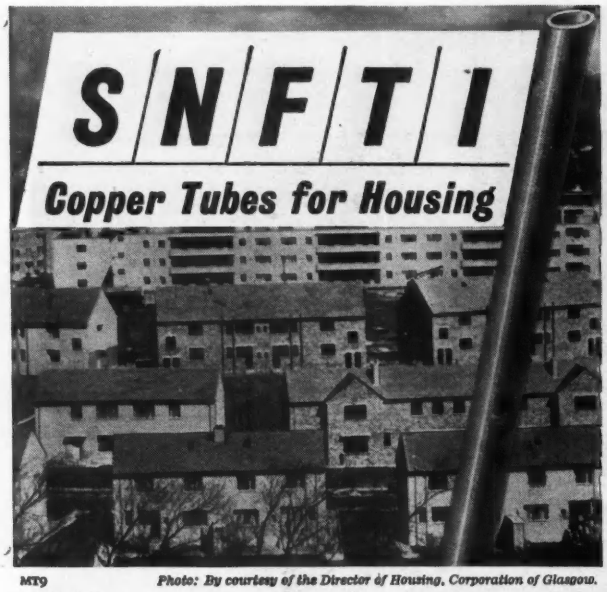
Look how this Durium-tipped Drill is working almost at the edge of the pot—*without fracture!* This sharp, clean-cutting quality of Durium-tipped Drills makes them specially valuable for many a tricky cavity job, quite apart from their extraordinary speed and silence in operation.

Durium-tipped Drills are made in all Rawlplug sizes from No. 6 to 30, in Rawlbolt sizes C. D. E. & G., and in the long series for drilling through walls. Look for the special inset Durium tip, and for the name DURIUM on the shank. Almost diamond-hard. *No other is a genuine Durium Drill.*

Free literature gladly sent on request—write today.

B417 *Durium-tipped—that's the point!*

THE RAWLPLUG CO. LTD • CROMWELL RD • LONDON, • SW7



MT9 *Photo: By courtesy of the Director of Housing, Corporation of Glasgow.*

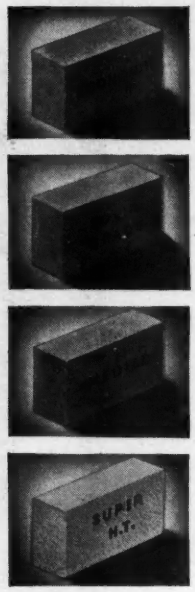
Solid Drawn copper tubes for electrical conduit, domestic water, and gas services. Specify for electrical conduit—BS 840/39; for water and gas services—BS 659/1944; for underground water services—BS 1386/1947.

SCOTTISH NON-FERROUS TUBE INDUSTRIES LIMITED

SALES OFFICE: 4, BLYTHSWOOD SQ., GLASGOW, C.2

TELEPHONE: DOUGLAS 7020 WORKS: HILLINGTON, GLASGOW, S.W.2

For INSULATION



The current range of "Fosalsil" insulating bricks and concretes are the outcome of innumerable insulation problems.

Whether required for a vertical retort or gas fired furnace, there is available a "Fosalsil" grade perfect in its balance between insulating values, mechanical strength and refractoriness.

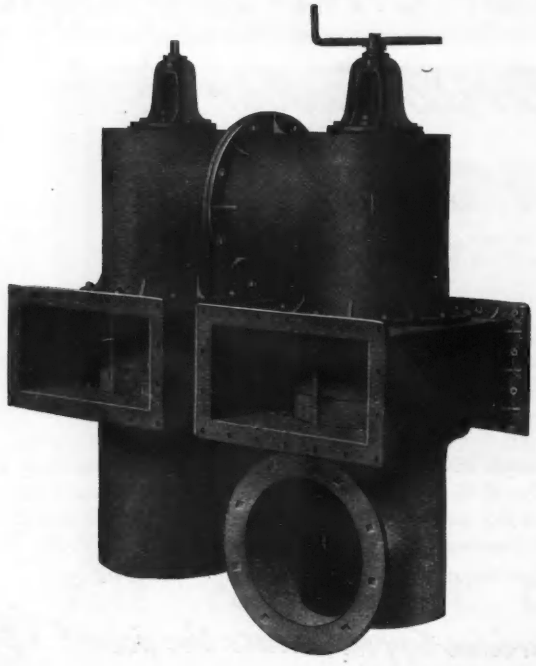
and ADVICE

There is also an expert advisory service which will gladly assist you in determining brickwork designs to provide the highest possible thermal efficiency with the most economical use of "Fosalsil" materials.

MOLER PRODUCTS LTD

HYTHE WORKS · COLCHESTER

Phone: COLCHESTER 3191 (3 lines) *'Grams: FURMOL, COLCHESTER*



THE
MILBOURNE
VALVES
WITH PACKED DISCS FOR
PURIFIERS

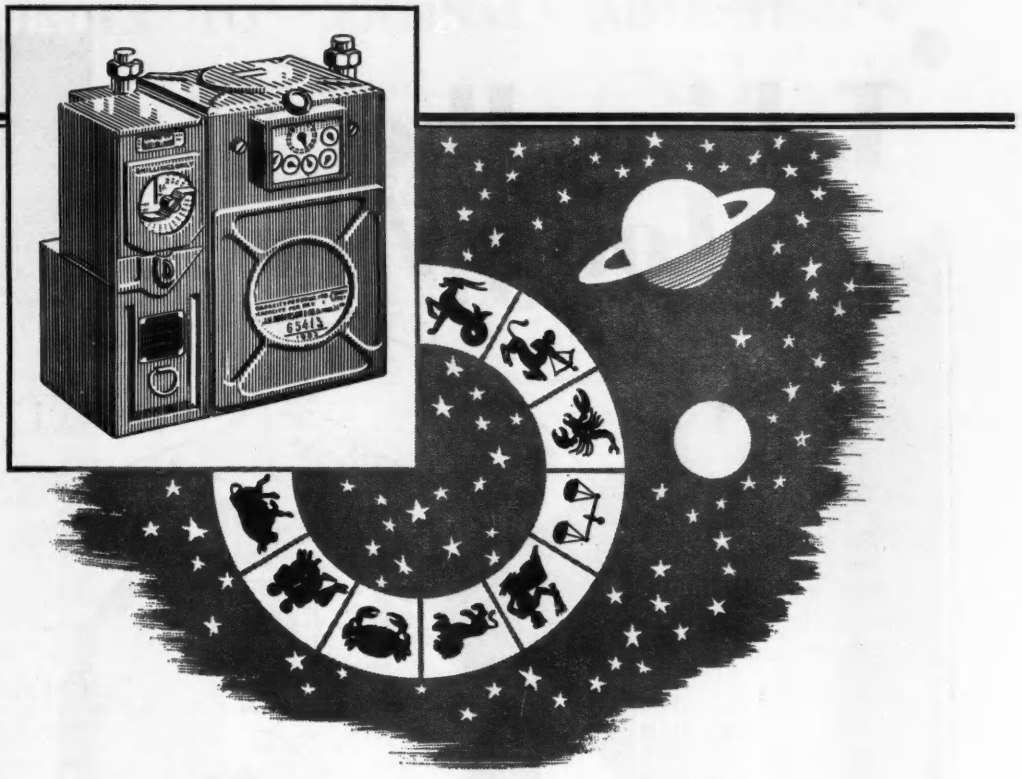
72 RECENTLY ORDERED BY ONE GAS BOARD

SOLE MAKERS:
C. & W.
WALKER
LTD.
DONNINGTON
Nr. WELLINGTON — SHROPS.

LONDON OFFICE:
70 VICTORIA STREET, S.W.1

'Phones: 12 WELLINGTON, SHROPS. & 5842 LONDON, VICTORIA

'Grams: "FORTRESS," DONNINGTON-SHROPS. "FORTRESS," SOWEST, LONDON



UNVARYING ACCURACY

At 10.0 p.m. on December 21st 1952 the sun enters the sign of Capricorn (The Sea Goat).

To look at the stars is a never-ending source of wonder; wonder at their age; wonder at the extent of their distance; wonder, too, at the accuracy with which their distances can be measured and their movements calculated.

When you think of accuracy — remember Robinson's.

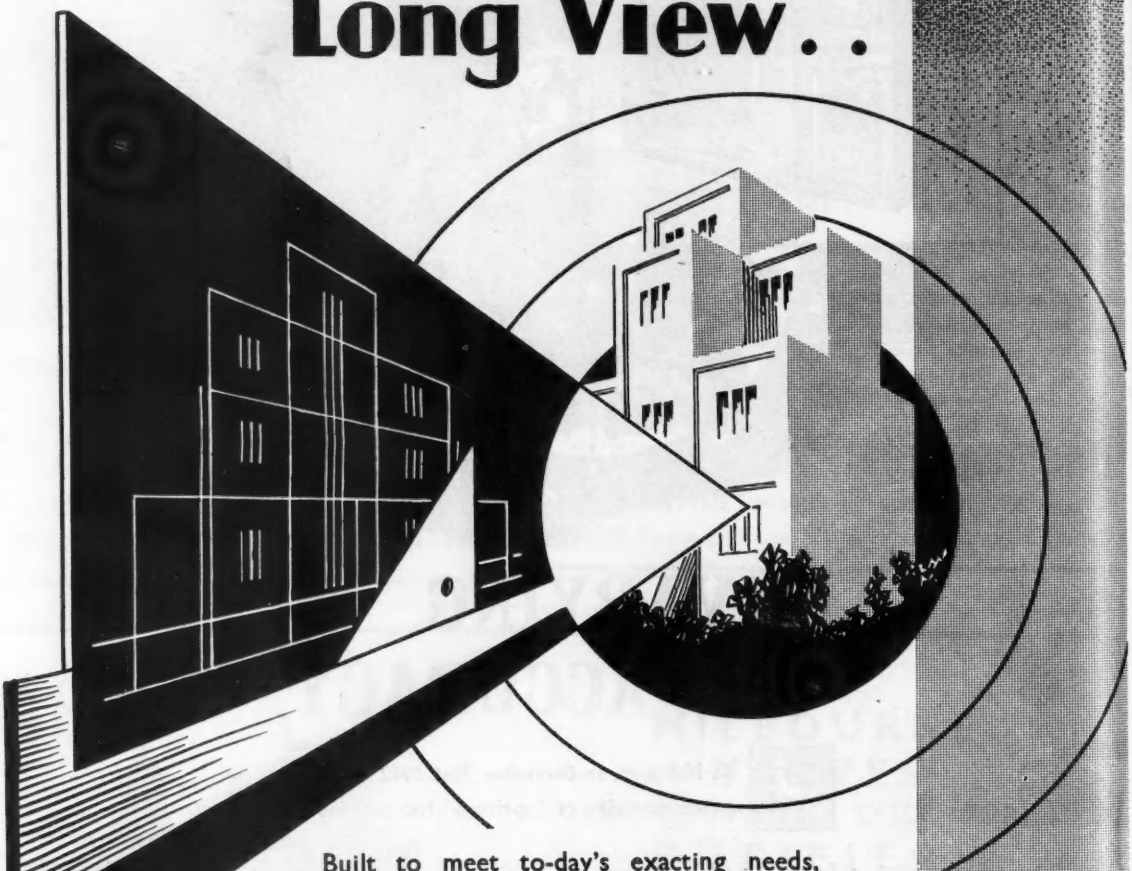
ROBINSON METERS and ALLIED APPARATUS

J. H. ROBINSON & CO. (LIVERPOOL) **LTD.**
Head Office: **Mill Lane, Old Swan, Liverpool, 13.**
Sales Office: **85, Mosley Street, Manchester, 2.**

Meter Components:
INDICES, UNIONS, ETC.
GAS and WATER FITTINGS
'AINTREE' WATER HEATERS

Office and Works for Scotland: **3-5, Nicoll Place, Edinburgh, 6.**

Taking the Long View..



Built to meet to-day's exacting needs, and the unpredictable demands of to-morrow. Built by Drakes: built to last.

Drakes
LIMITED · HALIFAX · YORKS

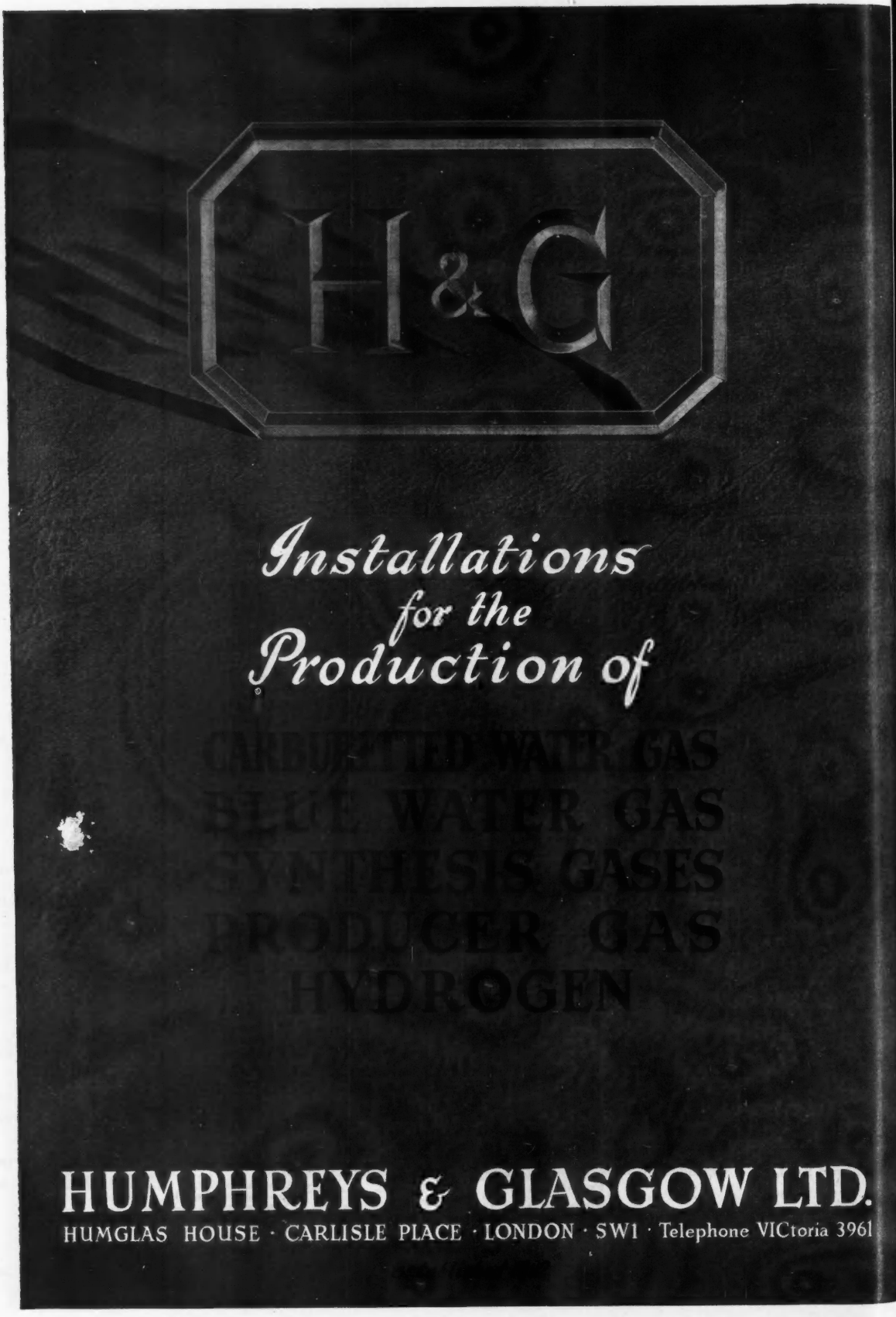
CONSTRUCTIONAL GAS ENGINEERS FOR MORE THAN A CENTURY

Telephone: Halifax 4701 P.B.Ex. Telegrams: Draketed, Halifax

INDEX TO 'JOURNAL' ADVERTISERS

	PAGE
A	
A.C.E. Machinery, Ltd.	
Abbott, Birks & Co., Ltd.	
Accurate Recording Instrument Co.	124
Acme Wringers, Ltd.	
Aerogen Co., Ltd.	135
Aerograph Co., Ltd.	
Alder & Mackay, Ltd.	169
Allan Taylor (Engineers) Ltd.	
Armco, Ltd., (Bundy Tubing Division)	
Ascot Gas Water Heaters, Ltd.	
Ascot Gas Water Heaters, Ltd. (F.A. Neat)	
Ashmore, Benson, Pease & Co.	119
Ashworth Thos. & Co. Ltd.	
Aspinall's (Paints), Ltd.	
Associated Lead Manufacturers, Ltd.	
Associated Lead Manufacturers, Ltd. (Rustodian)	
Automatic Telephone & Electric Co., Ltd.	
Automotive Products, Ltd.	
Averill, C. R., Ltd.	126
B	
Bailey, Sir W. H., & Co., Ltd.	
Bale & Church, Ltd.	S3
Balfour, Henry, & Co., Ltd.	
Begwaco Meters, Ltd.	
Bell's Asbestos & Engineering, Ltd.	
Benham & Sons, Ltd.	
Blakeley, Firth, Sons & Co., Ltd.	
Bolton's Superheater & Pipe Works Ltd.	
Booth, John & Sons (Bolton), Ltd.	
Boydell, E., & Co., Ltd.	
Bratt Colbran, Ltd.	139
Bray, George, & Co., Ltd.	
Bray, W. E., & Co., Ltd.	
Bright, Son & Co. (Clerkenwell), Ltd.	
Bristol's Instrument Co., Ltd.	
British Flint & Cerium Manufacturers, Ltd.	
British Gas Purifying Materials Co.	
British Industrial Products	
British Iron & Steel Federation	
British Oxygen Co., Ltd.	129
British Rototherm Co., Ltd.	
British Thermostat Co., Ltd.	
British Thomson Houston, Ltd.	
British Tyre and Rubber Co., Ltd.	137
British Vacuum Cleaner & Engineering Co., Ltd.	145
Broadbent, Thomas, & Sons, Ltd.	
Brockhouse Heater Co., Ltd.	
Broom & Wade, Ltd.	
Brotherhood, Peter, Ltd.	
Brown, J., & Co., Ltd.	S2
Bugden, Thos., & Co.	
C	
Cambridge Instrument Co., Ltd.	169
Cannon (Holdings) Ltd.	
Carron Co.	
Cementation Co., Ltd.	
Central Manufacturing & Trading Co. (Dudley) Ltd.	
Chamberlain Industries Ltd.	
Chaseside Engineering Co. Ltd.	
Chemical Engineering Wiltons Ltd.	
Chemical & Insulating Co., Ltd.	
Cinema-Television, Ltd.	
Clapham Bros., Ltd.	
Clayton, Son & Co., Ltd.	131
Clifford Engineering Co., Ltd.	
Cochran & Co., Annan, Ltd.	
Cohen, George, Sons & Co., Ltd.	
Collins, Thomas, & Co., Ltd.	
Concrete Proofing Co., Ltd.	
Consolidated Pneumatic Tool Co., Ltd.	
Cort, Robert & Son Ltd.	117
Coventry Chromium Plating Co. Ltd.	
Cowper Penfold & Co., Ltd.	
Cox & Danks, Ltd.	
Crane, Ltd.	
Crone & Taylor, Ltd.	
Crosby & Co., Ltd.	
Cronslands (Rugeley) Ltd.	
Crosley Bros.	
Curtis, A. L. & Co.	S2
Cutler, Samuel, & Sons, Ltd.	
D	
Dale Reynolds & Co., Ltd.	
Davey, Paxman & Co., Ltd.	
De la Rue, Thomas, & Co., Ltd. (Potterton Gas Group)	
Demolition & Construction Co. Ltd.	
Dempster, R. & J., Ltd.	Cover I
Dempster, Robert, & Sons, Ltd.	162
Derbyshire Silica Firebrick Co., Ltd.	
Desion Ltd.	
Diaphragm & General Leather Co., Ltd.	
Dick, R. & J., Ltd.	
Donkin (The Bryan) Co., Ltd.	Cover II
Douglas, Robert M., (Contractors), Ltd.	
Douglas, William, & Sons, Ltd.	
Drakes, Ltd.	142
Drew, H. R., Ltd.	
Dunlop & Ranken, Ltd.	
E	
E.B. Refractory Cement Co., Ltd.	S2
Edgar, William, & Son, Ltd.	
Elcontrol Ltd.	
Electrofio Meters Co., Ltd.	
Electrolux Ltd.	
Elliott Bros. (London), Ltd.	
English Electric Co., Ltd.	
Ether, Ltd.	
Evershed & Vignoles, Ltd.	
Evode Ltd.	S1
Ewart Chainbelt Co., Ltd.	
Ewart & Sons, Ltd.	
Expanded Metal Co., Ltd.	
F	
Falk Stadelmann & Co., Ltd.	
Fibreglass, Ltd.	
Flavel, S., & Co., Ltd.	
Fluxite, Ltd.	S4
Four Oaks Spraying Machine Co., Ltd.	
Fowler, John & Co., (Leeds) Ltd.	
Franki Compressed Pile Co., Ltd.	
Fraser & Chalmers, Engineering Works	
Fry's Metal Foundries, Ltd.	133
Fyffe & Co., Ltd.	
G	
Gas Chambers & Coke Ovens, Ltd.	
Gas Purification & Chemical, Ltd.	S4
General Descaling Co., Ltd.	
General Electric Co. Ltd.	
General Gas Appliances, Ltd.	
Gibbons Bros., Ltd.	125
Gibbons (Dudley), Ltd.	
Gibson, John & Son, Ltd.	S1
Glover, George, & Co., Ltd.	
Glover, Thomas, & Co., Ltd.	146
Godfrey Sir George, & Partners (Industrial) Ltd.	
Goodall Clayton & Co., Ltd.	136
Goodyear Mechanical Goods	
Grant & West, Ltd.	136
Graphite Products, Ltd.	
Green E., & Son, Ltd.	130
Green & Boulding, Ltd.	S4
Gunite Construction Co., Ltd.	
H	
Hamilton, A. H., & Co., Ltd.	
Hardman & Holden, Ltd.	
Harris & Pearson, Ltd.	174
Harris Engineering Co., Ltd.	
Harrisons (London), Ltd.	S3
Harvey, G. A., & Co. (London), Ltd.	127
Hawkins, W. T. & Co.	
Heaths (Eccles), Ltd.	
Hewitt Construction Co., Ltd.	
Hickson's Timber Impregnation Co. (G.B.), Ltd.	
Hilmor, Ltd.	
Holden & Brooke, Ltd.	
Holmes, W. C., & Co., Ltd.	S5
Honeywell-Brown, Ltd.	
Horseley Bridge & Thomas Piggott, Ltd.	
Horstmann Gear Co., Ltd.	126
Howden, James, & Co., Ltd.	
Hughes, F. A. & Co., Ltd.	
Humphreys & Glasgow, Ltd.	144
I	
Ideal Boilers & Radiators, Ltd.	
I.C.I. Ltd. (Metals Division)	
Ingham, John, & Sons, Ltd.	
International Combustion, Ltd.	
J	
Jeavons, E. E., & Co., Ltd.	
Jeavons Engineering Co.	
Jenkins, W. J., & Co., Ltd.	
Johnson, C. H. (Machinery) Ltd.	
K	
Keay, E. C. & J., Ltd	124
Keith Blackman, Ltd.	S6
Kerr, John & Co., (M/C) Ltd.	
King, Geo. W Ltd.	135
King, Walter, Ltd.	S2, S3
Kings Patent Agency, Ltd.	
Kirk & Co. (Tubes), Ltd.	
Kirkham Hulett & Chandler, Ltd.	122
Kleenoff Co.	
Klinger, Richard, Ltd.	
L	
Laidlaw, R., & Son (Edin.), Ltd.	
Lamont, James H., & Co., Ltd.	
Lancashire Dynamo & Crypto, Ltd.	
Lawler, Ayers & Co., Ltd.	
Le Bas Tube Co., Ltd.	120
Leeds X.L. Fire Cement Co.	
Lionweld, Ltd.	
Lind, Peter, Ltd.	
M	
Macpherson, Donald, & Co., Ltd.	
Magnetic Valve Co., Ltd.	
Main, R. & A., Ltd.	facing pp. 164,165
Marco Conveyor & Engineering Co. Ltd.	
Master Gas Cookers Ltd.	
Mavor & Coulson, Ltd.	
Mechanical Handling	
Meltham Silica Fire Brick Co., Ltd.	
Mercol Products, Ltd.	
Messenger & Sons, Ltd.	
Meters, Ltd.	
Metropolitan Leather Co., Ltd.	
Milnes Meters, Ltd.	
Mitcham Smelters Ltd.	174
Mitchell, H., & Co.	S1
Moler Products, Ltd.	140
Monk, A., & Co., Ltd.	
Morris Commercial Cars, Ltd.	132
N	
National Benzole Co., Ltd.	
National Enamels, Ltd.	
Newton Chambers & Co., Ltd.	
Nu-Swift Ltd.	S3
O	
Olding, Jack & Co., Ltd.	
Orme, Evans & Co., Ltd.	
Oxley Engineering Co., Ltd.	
P	
Parkinson & Cowan (Gas Meters), Ltd.	146
Parkinson Stove Co., Ltd.	
Pass, E. & Co., Ltd.	
Peckett & Sons, Ltd.	
Peebles & Co., Ltd.	
P (continued)	
Peel, H. Ltd.,	
Pegson, Ltd.	
Perl Controls, Ltd.	
Plus Gas Co., Ltd.	
Power Gas Corporation, Ltd.	119
Power Jacks Ltd.	
Powers-Samas Accounting Machines (Sales), Ltd.	
Pratt Engineering Co.,	
Press, William, & Son, Ltd.	
Pulsometer Engineering Co., Ltd.	
R	
Radiant Heating, Ltd.	
Radiation, Ltd.	170, 171
Rawlplug Co., Ltd.	139
Reavell & Co., Ltd.	130
Riley, A. J., & Son, Ltd.	
Roberts, R. E. & Sons, Ltd.	
Robinson, J. H. & Co., (Liverpool) Ltd.	141
Royles, Ltd.	
Rozalex, Ltd.	
Russell, R., & Sons, Ltd.	
S	
Salter, T. E., Ltd.	
Saunders Valve Co. Ltd.	
Scottish Non-Ferrous Tube Industries, Ltd.	140
Shannon Ltd.	
Siebe Gorman & Co., Ltd.	
Sigma Instrument Co., Ltd.	
Simon-Carves, Ltd.	
Simon, Richard, & Sons, Ltd.	
Sisson, W., & Co., Ltd.	
Slingsby, W., & Co., Ltd.	
Smith Meters, Ltd.	
Smith, Thos. & Sons, (Rodley), Ltd.	
Spence, Peter & Sons Ltd.	
Spencer Bonecourt, Ltd.	136
Sperryn & Co. Ltd.	
Standard Furnace & Setting Co., Ltd.	S2
Stanton Ironwork Co., Ltd.	
Staveley Iron & Chemical Co., Ltd.	
Stein, John G., & Co., Ltd.	
Stelcon (Industrial Floors) Ltd.	
Stewart & Gray, Ltd.	
Stewarts & Lloyds, Ltd.	
Stone, J. B., & Co, Ltd.	
Stoves, Ltd.	
Strachan & Henshaw, Ltd.	
Stringer Bros.	
Sugg, William, & Co., Ltd.	
Summerson, Thos. & Sons, Ltd.	
Sutcliffe Speakman & Co., Ltd.	118
Sutherland, A. G., Ltd.	
T	
Taylor, F., & Sons, Ltd.	
Thomas & Bishop, Ltd.	
Thomas (Richard) & Baldwins, Ltd.	123
Thompson, John, Conveyor Co.	
Thorp, Thomas, & Co., Ltd.	
Tully, Sons & Co., Ltd.	
Turners Asbestos Cement Co., Ltd.	
U	
Underpressure Engineering Co., Ltd.	S4
United Kingdom Construction & Engineering Co., Ltd.	
V	
Vale, Thomas, & Sons, Ltd.	
Visco Engineering Co., Ltd.	
Vulcan Stove Co., Ltd.	
W	
W.D. (Sheeters), Ltd.	
Wailes Dove Bitumastic Ltd.	
Wakefield, C. C., & Co., Ltd.	
Wakelin, F. H., Ltd.	
Walker, C. & W., Ltd.	140
Walker, Crosweller & Co., Ltd.	
Waller, George, & Son, Ltd.	
Ward, Thos. W., Ltd.	Cover IV
Webster H. R. Ltd.	S2
Wellington Tube Works, Ltd.	
Wellman Smith Owen Engineering Corpn., Ltd.	
Wessex Industries (Poole) Ltd.	
West's Gas Improvement Co., Ltd.	Cover III
West Hunwick Silica & Firebrick Co., Ltd.	
West's Piling & Construction Co.,	
Westwood & Wrights, Ltd.	
Whessoe, Ltd.	121
Whitehouse, Wm., & Co., Ltd.	
Whittaker Hall & Co. (1929) Ltd.	
Wilkes, A. H., & Co., Ltd.	174
Willey & Co., Ltd.	134
Williams, John E., Ltd.	
Williamson Cliff, Ltd.	
Wilson, George, Gas Meters, Ltd.	
Winn & Coales, Ltd.	128
Woodall-Duckham Vertical Retort & Oven Construction Co. (1920), Ltd.	161
Wood, Hugh, & Co., Ltd.	
Wright, Alexander, & Co., Ltd.	
Y	
Yorkshire Copper Works, Ltd.	138

	PAGE
Appointments Vacant	S4
Appointments Wanted	
Contracts Open	
Educational	
Financial	
Miscellaneous	
Notice	
Patents	
Plant Wanted	S4
Publications	
Repairs	


H & G
Installations
for the
Production of
CARBURETTED WATER GAS
BLUE WATER GAS
SYNTHESIS GASES
PRODUCER GAS
HYDROGEN
HUMPHREYS & GLASGOW LTD.
HUMGLAS HOUSE · CARLISLE PLACE · LONDON · SW1 · Telephone VICtoria 3961

HOT PICK-UP

A lot of manual labour is wasted doing jobs which can be done more quickly and more efficiently by mechanical means. This self-emptying shovel specially designed by B.V.C. for the removal of hot ash and soot in boiler houses is such an example. This is but one example of B.V.C.'s modern approach to industrial problems using pneumatic extraction plant.

Have you a problem concerning the conveying, extraction or removal of light materials? If so please write us—there is no obligation.

B.V.C BRITISH VACUUM CLEANER INDUSTRIAL VACUUM CLEANERS

BRITISH VACUUM CLEANER & ENGINEERING CO. LTD
(DEPT 63) GOBLIN WORKS, LEATHERHEAD, SURREY

Gas Journal

104th YEAR OF PUBLICATION

EDITOR: NORMAN S. SMITH, B.Sc. (Gas Eng.)

11, BOLT COURT, FLEET ST., LONDON, E.C.4. Telephone: CENtral 2236-7 Telegrams: Gasking, Fleet.

VOL. 272 NO. 4663 OCTOBER 15, 1952

CONTENTS

Page

EDITORIAL COMMENT

The Ridley Report and After ... 147
Sales Tonic ... 148
Education and Training ... 148
South Wales Grid ... 149
Revival in the South West ... 149
International Road Tar Conference ... 149

NEWS OF CURRENT EVENTS

Personal ... 150
Obituary ... 150
Diary ... 150
Institution of Gas Engineers: South Western Section Annual Meeting ... 151
Manchester and District Section Visits Dempsters ... 152
Wales Juniors at Pontypool ... 152
Beckton Boilers ... 154
Ideal Home Exhibition ... 154
Midland Juniors Visit De La Rue Works ... 155
Technological Universities Needed ... 155
Long Service in Wales ... 155
A Warm Institute for the Blind ... 155
The Journal Reviews New Films for the Industry ... 156
New World 'Eighty Four' Cooker ... 158
Irish Coal Mine for Sale ... 173

CONSULTATIVE COUNCILS

West Midlands: Steel Allocation Discussed ... 153
North Eastern: Council Rejects Board's Price Proposal 154

FEATURE ARTICLE

A Novel Glover-West Vertical Retort Setting ... 157

TECHNICAL RECORD

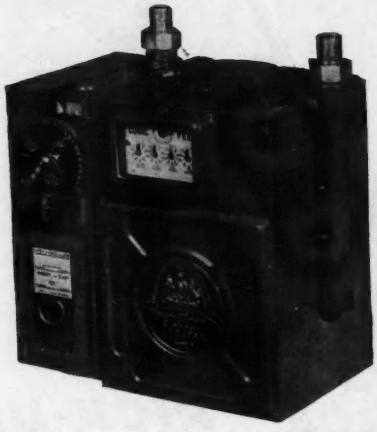
Manufacture of Cast Iron Pipes. By H. J. Starns, M.S.M.A., Assoc.Inst.Gas E., South Wales Area Manager, Staveley Iron and Chemical Co., Ltd. ... 159
Problems of Scottish Juniors. By R. A. Currie, A.R.T.C., A.M.I.Mech.E., Glasgow ... 163
Use of Butane in Small Gasworks. By W. T. Cosby, B.Sc., Ph.D., A.M.Inst.F., W. C. Holmes & Co., Ltd. 164

Subscription Rates: Home and Empire 52/-; Foreign 60/-

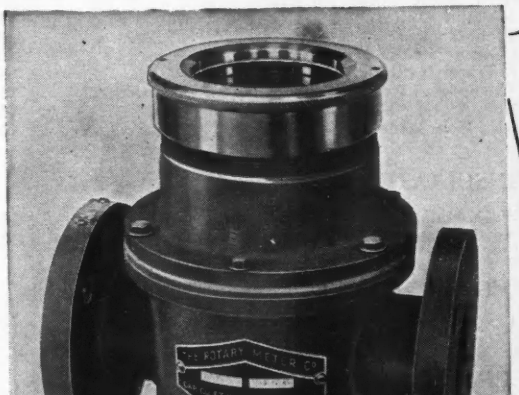
Full Publishers' Notice: See Page S3

Gas Journal . . . . Walter King Ltd.

One mechanism only is needed for any denomination of coin whether it be 1d., 6d., 1/- or 2/6.
(In combinations of 1d.—1/-; 6d.—1/-; 1/-—2/6)



THOMAS GLOVER & CO LTD
EDMONTON, LONDON, N.18 & BRANCHES



for
check-metering
on industrial
gas appliances
ROTARY METERS

- Low in cost.
- Easy to install.
- Small in size.
- Low in maintenance.
- Negligible pressure loss.
- Prompt delivery.
- Unaffected by pressure variations.
- Accurate from 1/10th up to full load.

FOR FURTHER PARTICULARS APPLY TO:
THE ROTARY METER CO DEPT. Q, VICTORY WORKS, STRETFORD, MANCHESTER
(Incorporated in Parkinson & Cowan (Gas Meters) Ltd)

GAS JOURNAL

VOL. 272. No. 4663 104TH YEAR OCTOBER 15, 1952

THE RIDLEY REPORT AND AFTER

GOVERNMENTS do not invariably act on the advice of commissions and committees whose advice they seek. It is not therefore to be expected that the present Government will accept all or many of the 40 recommendations put forward by the Committee appointed by the Minister of Fuel and Power who was in office in July, 1951. Presumably they will be carefully considered by the Minister's immediate technical and scientific advisers before he presents his own proposals to the Cabinet.

The Committee's terms of reference were, to say the least, a little curious. The Committee was asked to consider 'whether any further steps can be taken to promote the best use of our fuel and power resources'—almost as if such a great deal was being done in that direction that just a little more might be sufficient. At the outset of its report the Committee seems to have some doubt about what was to be understood by promoting the best use. Thus the first impression made by the terms of reference and the resulting report is that there is no great urgency about it. It is indeed admitted that with the present shortage of coal supplies and gas and electricity plant, none of which can be quickly increased, it is not possible to meet demand in full. 'The first object must be to divide what is available between different claimants so as to make the best use of it.' No one will quarrel with the statement that this immediate problem may require measures which are in conflict with the general aims of policy for the long run—the familiar distinction between short-term and long-term policies. Nor will anyone dispute that both policies are faced with a series of intricate problems. What one may dispute is whether the Committee gives sufficient weight to the determination of the best use of fuel and power by the quantity of the diminishing and irreplaceable coal consumed in providing the supply. This factor appears to be lost in the number of other factors, important enough in themselves, which enter into the problem.

The fourth among the general aims which the Committee has assumed to constitute a national fuel policy was to encourage the use for particular services of the fuel which gives the best returns on the resources consumed. The Committee was not very far from the pith of the matter. But can it be said that its recommendations fully satisfy such a requirement as that put forward by the Federation of British Industries, which hoped the Committee would not shrink, 'in view of all that is known about relative thermal efficiencies of various fuels for different purposes, from the task of recommending a policy aimed at promoting the choice of the most efficient fuel for each main category of use? The F.B.I. included in its statement of the aims of a national fuel policy, 'to encourage *to the utmost* (our italics) the employment of the different types of fuel and power in those uses for which they are most suitable.'

What then should have been the conclusions drawn from the evidence put before the Committee? What can the evidence be taken to prove? Surely the note which runs through it all, apart perhaps from the evidence of one of the 'fuel' industries, but particularly through that of the two sides of industry, is the need for co-ordination. The Committee's nearest approach to this is its recommendation of a Joint Fuel and Power Planning Board. The main objections to the proposed board are that it would be too big and heterogeneous in composition and that its eyes would be too far in the future. The situation cries out for co-ordination now. And not only co-ordination at the top but also at area levels. Nearly three years have elapsed since the three main industries (paraphrasing the evidence of the T.U.C.) coal, electricity, and gas, were completely nationalised, and there are as yet no signs of a co-ordinated policy.

The Fuel and Power Council which the T.U.C. suggests would have some of the defects of the Committee's Joint Planning Board. But there is one feature of the suggestion which merits very close and very careful attention. It puts forward that the Council should make an annual report and that the Minister should also make a report to Parliament containing the Council's report. 'It would thus become available to the public.'

We submit that this suggestion is fully in the tradition of our Parliamentary institutions. Coal, we submit—that is, fuel and power—is nearly if not quite as important in the economic life of our nation as money. And just as the Chancellor of the Exchequer issues before Budget Day a statement of the nation's income and expenditure, so should the Minister of Fuel and Power issue, with an annual statement of his own policy, a review by his competent technological and industrial advisers of the nation's fuel position.

With the Committee's short-term policy we have no particular quarrel. If it is assured that the consumer will have real and practicable freedom of choice, gas will hold its own. If tariffs are so ordered that every consumer will pay the real cost of what he is buying, we need not fear that any other fuel will outbid gas and coke in suitable proportions and applied to suitable purposes. Beyond that, discussion in detail just now merely fogs the issue.

There are one or two further steps in the short-term which we should like to see taken. First among these is that as far as possible bituminous coals of the gas and coke making qualities should be reserved for carbonisation. Perhaps next is that gasworks extension and maintenance should be given a much higher priority in allocations of capital and of steel. But above all that co-ordination of all the fuel industries should be treated 'as a matter of great urgency.' This is not a long-term consideration—'a policy is needed now even if it means abandoning, at least temporarily, some current practices.'

SALES TONIC

RECENTLY Colonel H. C. Smith, Chairman of the Gas Council, issued a warning against a danger of living in a fool's paradise because the gas industry is not at the moment forced to go out and sell its products. With domestic coal rationed so that only 30 mill. tons is being consumed, compared with 45 mill. tons before the war, it has been easy to sell gas. 'The whole business,' said Colonel Smith, 'has been handed to us on a plate, and it can be very dangerous to feel that you can sit back at your ease.' When restrictions on selling and advertising are removed, it will be necessary to enter a competitive market with energy and sell gas and coke and gas and coke appliances. Otherwise we shall lose the battle against competitive fuels. In his William Young Memorial Lecture to the Scottish Association of Gas Managers, Dr. Harold Hartley, Chairman of Radiation Ltd., commented that it is by studying the missed opportunities of the past that the most valuable pointers to future action can be obtained; and he suggested that the present time is peculiarly pregnant with opportunity for the gas industry not only to regain lost ground but to surge forward to unprecedented levels of activity and service. A bolder approach to the domestic load can undoubtedly assist in easing the national fuel situation, while at the same time adding to the amenities of life for the majority. 'Be appreciative also,' said Dr. Hartley, 'of the benefits which are derived from the competition afforded by the electrical industry.' We have had the report of the Ridley Committee, which maintains that there should be no Government intervention to restrict that competition beween the fuel and power industries which has in the past provided an effective stimulus to enterprise and efficiency. In the Committee's view—and it is a view which we ourselves hold firmly—once an appropriate framework has been provided, competition between the nationalised industries will be in the country's interest.

In an address which he is giving to various Gas Salesmen's Circles, Mr. R. J. Gregg, Publicity Officer to the Gas Council, takes a very dim view of the preparedness of the gas industry for the coming struggle for new business; in a nutshell he suggests that the industry does not, in fact, know what it wants. The address, which does not mince matters, is a clarion call to action, and we hope that it will lead both executives and all on the selling side to a more realistic perspective of what we think is a grave situation. Mr. Gregg asks that the old and narrow process of short-term thinking should be replaced by the imaginative conception which admits that salesmanship has to be valued on a long-term basis. If, he says, 'you wipe out the salesman and publicity, then you are well on the road to bankruptcy.' He does not pull his punches in roundly accusing the gas industry of complacency on the selling side. The time has gone when the industry was able to insist that anybody who wanted to buy a gas appliance would 'have to bow down and worship at a local showroom. . . The industry desperately needs a large dose of good sales tonic.' And he suggests that sales apathy within the industry is in itself a very real competitor in the field. 'The voice of Mr. Therm has been largely suppressed into nothing more effective than an anæmic whisper, and the absence of promotional publicity has a destructive effect upon the enthusiasm and energy of any good salesman who takes a pride in his job.' Publicity, Mr. Gregg argues, is inseparable from salesmanship, the overall objective of which is to increase sales and thus decrease the price of the product to the consumer, so that the latter is always the direct beneficiary. The stability, development, and future of the industry and the interest and security of every employee are affected, in one way or another, by the presence or absence of publicity; and in regard to gas industry publicity allegations of 'exuberant expenditure' are frequently made with a fine disregard of the facts. 'The only justifiable criticism is that the *pro rata* expenditure is totally inadequate.' Hard thinking followed by determined action should be the order of the day.

EDUCATION AND TRAINING

ONE of the duties imposed on the area boards by the Gas Act is that of making 'provision for advancing the skill of persons employed by them,' including the provision of 'facilities for training and education.' The reports of the Gas Council and the area boards have testified to the energetic manner in which the industry generally has applied itself to the furtherance of what in the years prior to 1949 was already a long standing tradition in this regard. All the major undertakings prior to nationalisation had

some kind of training scheme, and the boards have recognised and co-ordinated the best features of such schemes on an area basis and thus brought the facilities within reach of those employed at the smallest works. In turn the boards have submitted their programmes to the Gas Council, which has settled a general policy with respect to the provision made, and to be made, by the boards. We give credit to the Eastern Gas Board, however, for having been the first to favour us with a printed copy of its education and training schemes which have been agreed upon after consultation with the various employee organisations. Mr. J. H. C. Bates, the Board's Industrial Relations Officer, tells us that in framing these schemes the Board is anxious that they shall apply equally to existing employees as well as new recruits.

Many of the facilities set out in the booklet have been in operation since September, 1949, although the apprenticeship, pupilage, and other training schemes have not been operated on a uniform basis. It is proposed to run the schemes uniformly throughout the area, and in order that comparable training can be given in various aspects of the Board's business it is to be noted that where facilities do not exist for implementing the training schemes in a particular district, office, or works, arrangements are to be made for the apprentice, pupil, or trainee to be transferred to another district, where such facilities exist, the Board undertaking to pay the expenses in this connection. It is proposed to place apprentices under agreement, and to deal with pupils under indentures, specimens of both of which are set out in the booklet. It is hoped that existing employees taking the facilities for part-time education which are offered will be able to enter the various schemes, possibly at stages during their employment.

The Board is introducing these arrangements forthwith, and it is hoped that by such schemes a nucleus of effectively trained personnel will eventually become available to fill the wastage and other posts which may become vacant for various reasons. The Board is also anxious that the existing employees in the various occupations should become efficient in their respective jobs, and provision is made for the attendance of such employees at refresher courses and other specially designed courses to meet particular needs. As Sir John Stephenson rightly says in a preface to the booklet, an ever-changing environment demands high standards of performance in all branches of industry today, and such standards can only be achieved by the employment of adequately trained persons in the various crafts and professions. It is hoped that the Board's schemes will meet this requirement and give opportunity for employees to improve their knowledge and experience and fit themselves for promotion.

SOUTH WALES GRID

THE importance of the South Wales gas grid to industry and the housewife was the subject of an article by a special correspondent in the *Western Mail* on September 25. Explaining how the interlinking of gas undertakings improves supplies and service to existing consumers and provides a gas supply to areas not catered for in the past, the author says the eastern section of the grid covers 1,100 sq. miles. To date, 95 miles of grid mains have been laid and when the grid is completed a total length of 163 miles will have been laid, equal to the distance from Cardiff to London. The western section now being constructed will cover West Glamorgan and will eventually extend as far as Carmarthen. Ultimately, the two sections will be joined to form a complete grid from Monmouth in the east to Carmarthen in the west. Almost all the work has been done by the Wales Gas Board's undertakings employing local labour. Forty-three river crossings have had to be made, and railways are crossed at 11 places. An outstanding problem was the laying of a main over the 1,400 ft. mountain between Aberdare and Merthyr Tydfil. The ground was so steep and rocky and the surfaces so full of fissures and crevices that a 14 in. steel main had to be laid above ground on special foundations for a distance of more than a mile.

REVIVAL IN THE SOUTH WEST

THE South Western Section of the Institution of Gas Engineers has grown up in two years from a small Western District of the old Southern Association of Gas Engineers and Managers into a vigorous body of over 120 members and with a syllabus that reflects the enthusiasm of the members and the energy of the officers. Most meetings of the S.A.G.E.M. were held in the eastern half of its territory, and the south western members were so widely dispersed that they seldom found opportunity for attending. Even now full representation of all four corners of the South Western Gas Board's area at meetings is possible only at rare intervals, but as far as practicable the venue is varied to suit north, east, south, and west in turn. Taunton, being at the geographical centre of the area, is a fitting venue for the annual meeting; it was there that the Section was formed two years ago under Mr. H. H. Brown's chairmanship, and in the same room last week the Senior Vice-President of the Institution, following the example of the President last year, offered words of encouragement to the members to keep up their pride in the gas industry. We usually think of the south-west as the place for holidays and relaxation, but the area has a growing industrial load and it was with the object of demonstrating the possibilities of developing it that Mr. T. H. Pardoe, Area Industrial Gas Officer, presented a paper on 'Industrial Gas Application'—a paper that provoked healthy discussion. Mr. Pardoe foresees the possibility of considerable light industry moving into the south-west, but it will be a relief to holiday makers to know that 'there is no danger that the area will become industrialised in the same way as other areas.'

INTERNATIONAL ROAD TAR CONFERENCE

INAUGURATED 21 years ago under the Presidency of the late Sir David Milne-Watson and the Executive Chairmanship of the late Sir Reginald Clarry, the International Road Tar Conference came to an untimely—but as events proved only temporary—end with its Brussels conference three months before the start of the 1939-45 war. After all that happened during and since the war it took time to secure the interest of the former members in the re-establishment of the Conference, but 1952 has seen the fruition of the steps taken to ascertain their views. Mr. Stanley Robinson, President of the British Road Tar Association, is the first President of the re-established International Road Tar Conference. As Mr. W. E. Cone, Technical Adviser to the B.R.T.A., said in an article in a recent number of the Association's magazine, there has

been a marked change of outlook in regard to road construction and maintenance. Whereas formerly road making was an art of a decidedly individualistic character, it is now becoming a technical operation subject to careful control at every stage. Science is destined to play an increasing part in solving the problems of the modern road, and the existence of the International Conference makes it possible for members to co-operate in disseminating the results of research and experimental work.

The I.R.T.C. has taken the wise view that its primary function is to advance the knowledge and technique of the use of tar for road purposes by co-operative effort. The problem of bridging the gap between the laboratory and the road is one with which all countries are confronted. Many complex problems require recourse to several sources of scientific information, and the co-ordination afforded by the Conference is invaluable. An organisation has been created to which members can look for guidance in the tasks that lie ahead.

Personal

Mr. M. E. Fishburn has been appointed London Manager of the Stanton Ironworks Co., Ltd., in place of **Mr. R. Kimber,** who is retiring after 33 years' service with the Company.

◇ ◇ ◇

Mr. C. Wadsworth has been appointed Chief Technical Officer (Utilisation) to the Newcastle division of the Norhern Gas Board. Mr. Wadsworth entered the gas industry from the Ministry of Supply in 1945 and subsequently held positions as Research and Development Engineer with Ewart & Son, Ltd., and Technical Representative with Sidney Flavel & Co., Ltd.

◇ ◇ ◇

Mr. F. W. Quick, District Inspector at Northampton, has retired after 51 years' service. He had completed a family total of 145 years, for his father had served for 54 years and his grandfather for 40 years. Mr. Quick served on the executive committee of the Northampton undertaking's sports and social club for 23 years, and for 19 years he was secretary of the Northampton Gas Light Company's sick club.

◇ ◇ ◇

Mr. W. H. Pilkington, Chairman of Pilkington Brothers, Ltd., and a director of the company's subsidiaries at home and overseas, was appointed Deputy President of the Federation of British Industries at a meeting of the Grand Council on October 8. In 1944 Mr. Pilkington became Chairman of the Executive Committee of the newly-formed National Council of Building Material Producers. He was also one of the three original F.B.I. nominees to the Industrial Coal Consumers' Council.

◇ ◇ ◇

Mr. J. Davidson Pratt, C.B.E., Chairman of the British Road Tar Association, was unanimously elected Chairman of the Executive Committee at a meeting of the International Road Tar Conference at Breukelen, Holland, on September 22. **Mr. W. E. Cone,** Technical Adviser of the B.R.T.A., was also elected Deputy Chairman of the Committee. Following the meeting the visitors were entertained to lunch by invitation of the N.V. Teerbedrijf Uithoorn, Uithoorn, Holland, and afterwards attended the showing of a film 'Thousands of Miles of Roads.'

◇ ◇ ◇

Mr. H. W. Versey, for 38 years associated with the Dawlish gas undertaking, has retired from the service of the South Western Gas Board. Appointed Engineer and Manager to the Dawlish Gas and Coke Company in 1914, he undertook the additional appointment of Secretary in 1919 on the death of Mr. W. E. Thornhill, and filled the combined office until the end of 1944, when a breakdown in health led him to relinquish the duties of Engineer and Manager and confine himself to those of Secretary. He was Chairman of the Western District of the old Southern Association of Gas Engineers and Managers in 1943. Mr. Versey recently received from Mr. J. W. Denton, Sub-Divisional Manager, a a silver ash tray as a present from his colleagues of the South Western Gas Board, and was afterwards entertained to lunch.

Obituary

Mr. H. F. Snow, Southern Representative of William Edgar & Son, Ltd., died on October 4 after a long illness.

◇ ◇ ◇

Mr. Albert E. Ryeland, Director of E. Boydell & Co., Ltd., died on October 2. He had been connected with the company since its inception.

Diary

Oct. 16.—Institution of Mechanical Engineers: Annual Dinner, Dorchester Hotel, Park Lane, 7 for 7.30 p.m.

Oct. 17.—Institution of Chemical Engineers (Graduates' and Students' Section, North East Centre): 'Gas Engineering,' A. J. Pringle. At Newcastle.

Oct. 17.—Midland Section, I.G.E.: Visit to Four Ashes works of Midland Tar Distillers.

Oct. 17.—Institution of Mechanical Engineers: General Meeting, Presidential Address of Sir David Pye, C.B., 'The Art of the Practical Engineer,' 5.30 p.m.

Oct. 18.—Institution of Chemical Engineers (North Western Branch): 'Further Training of the Chemical Engineer, Stanley Robson (President), Manchester College of Technology, 3 p.m.

Oct. 20.—Institute of Fuel: Melchett Lecture, Dr. D. T. A. Townend, C.B.E., at Institution of Mechanical Engineers, Storey's Gate, S.W.1.

Oct. 21.—Scottish Juniors (Western): Evening visit to Braehead Power Station, Renfrew.

Oct. 21.—Midland Juniors: 'Organisation for Efficient Control in a Modern Large Retort House,' C. P. Astbury, Birmingham; Staff Mess Room, Council House, Birmingham.

Oct. 21.—London and Southern Section, I.G.E.: Annual General Meeting, 'Some Aspects of Calorific Value' J. T. Veryard, South Eastern Gas Board; at 17, Grosvenor Crescent, S.W.1, 2.40 p.m.

Oct. 21-22.—Combustion Engineering Association: Conference on 'Operation and Maintenance of Industrial Boiler Plant.' Grand Hotel, Harrogate.

Oct. 21.—Eastern Juniors: 'Gas Meters and Their Development,' S. Armitage (W. Parkinson & Co., Ltd.), at Bedford.

Oct. 21-24.—Dairy Show, Olympia: Gas Council exhibit, stand 146/147.

Oct. 23.—Midland Juniors and Yorkshire Juniors: Joint visit to Standard Motor Co., Ltd.

Oct. 25.—London Juniors: Afternoon visit to Willoughby Lane, Tottenham, depôt of William Press & Son, Ltd. 2.30 p.m.

Oct. 28.—Midland Section, I.G.E., and Midland Branch, Institute of Sewage Purification: 'Treatment of Gasworks Liquor in Admixture with Sewage in Percolating Filters,' W. H. Blackburn, PH.D. (ex Gas Research Board), T. G. Tomlinson, M.SC., M.INST.S.P. (Water Pollution Research Laboratory), and T. H. Summers. At Birmingham Chamber of Commerce, 2.30 p.m.

Oct. 29.—Institution of Gas Engineers and Coke Oven Managers' Association: Joint Meeting, 'Selection of Gas Manufacturing Plant in Relation to Supplies of Coke Oven Gas,' F. G. Pyper, East Midlands Gas Board, at Institution of Civil Engineers, 2.30 p.m.

Oct. 30.—North Thames G.C.C.: Westminster City Hall, W.C.2. 2.30 p.m.

Oct. 30-Nov. 1.—North Eastern Gas Board: Conference of Senior Officials, Harrogate.

Nov. 3-8.—Public Works and Municipal Services Congress and Exhibition, Olympia. Institution of Gas Engineers session, Nov. 5: 'The Gas Industry's Contribution to the Fuel Services of the New Town,' W. G. Phillips, M.A., A.M.I.C.E.; 'The Cremation Movement in Great Britain with special reference to Cremator Design,' W. R. Pearson, A. Higgs, and R. H. Anderson. Gas Council exhibit, Stand No. 161.

Nov. 4.—East Midlands G.C.C.: Town Hall, Sheffield, 11.30 a.m.

Nov. 4.—'International Kitchen,' Royal Festival Hall. Exhibition of international cookery sponsored by the Gas Council.

Institution of Gas Engineers

South Western Section's Annual Meeting

THE annual general meeting of the South Western Section of the Institution of Gas Engineers was held in the South Western Gas Board's demonstration theatre at Taunton on October 8, the retiring Chairman, Mr. J. H. Lowther (Barnstaple) presiding over the first part of the proceedings. A cordial welcome was extended to Mr. J. T. Haynes, Senior Vice-President of the Institution, and regret was expressed at the absence of Mr. C. H. Chester, Chairman of the South Western Board, Mr. E. R. V. Porter, Deputy Chairman, Dr. A. Marsden, Area Scientist, and others.

The CHAIRMAN proposed the adoption of a recommendation from the Management Committee that the Section should contribute 20 guineas to the Institution Benevolent Fund, as against 10 guineas in past years.

Mr. H. H. BROWN (Exeter) seconded and urged that as many members as possible should sign deeds of covenant whereby the Fund would benefit by repayment of income tax on the amount of the subscriptions.

Mr. J. T. HAYNES, as a member of the Benevolent Fund Committee, expressed thanks for the increased donation, not only on behalf of the Committee, but on behalf of the recipients who had fallen by the wayside and who very much appreciated the help they received from the Fund.

Growing Membership

The meeting unanimously adopted the second annual report, which recorded a membership of 122, including Mr. W. H. Bennett, who was classified as Hon. Visitor. It was stated that of the active total of 121, 38% contributed to the Benevolent Fund under deed of covenant, while total subscribers represented 68%. The hope was expressed in the report that the remaining 32% would come into line, and that an increasing number would sign deeds of covenant.

The CHAIRMAN said they had now completed the second year of the existence of the District Section, and since the appeal made by Mr. H. H. Brown at the close of his year of office it was pleasing to record an increase in membership from 94 to 121. In his opinion it was of vital importance that the sections should not only be strong in numbers but should also be representative of the industry. While the Institution itself catered for its spring and autumn meetings for specialist papers and discussions on matters of more advanced research the district sections had their part to play in maintaining a live interest in the intimate and practical discussion of general procedure and policy.

In a structure so large as the gas industry there was always a danger that procedure might for reasons of economy become too stereotyped and lose flexibility. If that was allowed to happen, manufacturers would lose the initiative to greater research into possible new and untried lines of experiment, to the detriment of the future wellbeing of the industry. It would also result in the suppression of initiative and imagination in the rising generation on which our progress depended. This was, he thought, where the district sections could play an important part, to the advantage of the Gas Council and the area boards, by discussion of, and promoting interest in, matters which would stimulate those necessary qualities in all those engaged in a live industry.

He was glad that reference had been made to the Institution Benevolent Fund. The fact that only 68% of the members of the South Western Section were at present contributing was not due to lack of sympathy with that worthy cause, but it was probably due to absence of personal application, or delay in implementing a decision to subscribe. He was asking the co-operation of the Management Committee in a personal approach to all non-subscribers. Mr. Brown had mentioned the deed of covenant, under which only 35% of the members were at present making their gifts. He urged all members to adopt this method, which placed no additional obligation on subscribers, but was a source of additional income to the Fund.

Tribute to the Secretary

During his year of office it had been pleasant to have had the attendance of the President of the Institution and the Chairman of the South Western Gas Board at some of their meetings. Before concluding his duties he wished to pay tribute to the work of Mr. Holman Dunn, the Hon. Secretary of the Section. He had given him guidance on many occasions, and a large measure of whatever success had been achieved was due to his efforts. It was now his pleasure to introduce his successor, Mr. J. W. Denton, G.M., a man of unbounded enthusiasm and charming personality. He believed that when Mr. Denton reached the end of his term of office he would find that the Section had benefited greatly from his chairmanship.

Mr. DENTON, on taking the chair, said his first duty was to thank Mr. Lowther. A good deal of progress had been made during the past year, and Mr. Lowther had worthily carried on the work which Mr. Brown started. Membership and interest had increased and good papers had been given. It was with great pleasure that he presented Mr. Lowther with a silver salver which he hoped would perpetuate his happy recollections of his year of office.

Mr. LOWTHER, in a brief response, expressed his confidence that the members would support Mr. Denton.

Mr. C. R. Ingham (Bristol) became Senior Vice-Chairman, and Mr. W. B. Claridge (Swindon) was elected Junior Vice-Chairman. Other appointments were: Members of Management Committee, T. L. Tallentire (Truro), T. W. Clapham (Bristol), and O. H. W. Boonham (Cheltenham); District Member of Institution Council, J. W. Lowther; Auditors, S. B. Jones and J. E. Wilkes.

The following new members were elected: J. E. Burden (Minehead); A. R. Langford (Plymouth); D. W. G. Scott (Bristol); and A. G. D. Yeamans (Bristol).

Mr. HAYNES said he had not come to talk, but there were a few things he ought to say as representing the Institution. Owing to another engagement, Mr. G. E. Currier, President, was unable to attend, but he had asked him to express his apologies and good wishes. He also brought apologies from Dr. W. T. K. Braunholtz, Secretary of the Institution, who had not been in the best of health and who felt he must not run about the country as much as he would wish. This was his own second appearance at the South Western Section and he wished to say how much he appreciated the friendship of many of its members. He joined them in congratulating Mr. James Carr on his birthday honour, and Mr. L. P. Ingram on his new year honour.

Are Salaries Adequate?

Reference had been made in the annual report to the work of the Education Committee, and there was one point he wished to stress, not in any way in an official capacity. Were they quite certain that having provided the necessary facilities for young men to be trained in the profession of gas engineering, they were going to retain their services on the salaries at present customary in the industry? He felt very strongly on that matter, and he thought the powers that be ought to bear in mind that having given the younger men the training that was essential they should be prepared to see that they had adequate remuneration on completion of their training and when they were doing a useful job of work for the industry.

The Benevolent Fund had already been referred to, but there was one addition he would like to make to the suggestion concerning the deed of covenant, namely, that members should sign a banker's order to ensure that their contributions were paid on an appointed date. He congratulated Mr. Denton on his election as Chairman of the Section.

They were all in an industry which they were proud to serve, even if nationalisation had wrought changes in their responsibilities. District section meetings enabled them to exert their personalities. He urged them to maintain their feeling of pride in the industry which they had before nationalisation and which he was confident would be justified when the present passing phase of change was completed.

Mr. T. H. PARDOE, Area Industrial Gas Officer, South Western Gas Board, then presented a paper on 'Some Aspects of Industrial Gas Application,' for which he was thanked by the Chairman. We shall deal with the paper and discussion in a later issue of the *Journal*.

Manchester & District Section Visits Dempsters

A LARGE gathering of members from both sides of the Pennines took part in the visit of the Manchester and District Section of the Institution of Gas Engineers to the Rose Mount Iron Works of Robert Dempster & Sons, Ltd., Elland, on September 26. The visit was notable in being the first the Section had paid to the works of this well-known Yorkshire firm of gas engineers for 28 years.

Originally founded in 1855, by the late Mr. Robert Dempster, who came to the town of Elland as Manager of the gasworks, the firm was at first principally concerned with the building of gas retorts, although gas engines also featured among the early products. From very humble beginnings the business rapidly grew on the present site, and began to develop the manufacture of all types of plant for the gas industry. In 1892 the firm commenced to manufacture spirally-guided gasholders, of which several hundreds have been built, of capacities up to 5 mill. cu. ft. The firm was also responsible for the introduction of the now universally used dry seal for purifiers.

Mechanical Handling

About 1899 mechanical handling plants were manufactured, while electric telpherage was introduced in 1912. The mechanical handling department of the firm has carried out some of the largest installations in the country. In 1904 the manufacture of vertical retorts was commenced, and for a long number of years constituted an important activity of the Company, until it was decided to discontinue the installation of this type of plant so as to be able to concentrate on the development of horizontal retort carbonisation, in which field the capabilities of the firm are widely recognised. As one of the original licensees, the firm commenced manufacture of M.A.N. waterless gasholders in 1928, and since this time a large number of holders of this type, of capacities up to 5 mill. cu. ft., have been erected at gas, steel and chemical works in this country and abroad. Robert Dempsters are justly proud of their record of craftsmanship, a great deal of which is handed down from father to son, and one such family has a combined total service of over 250 years.

Before visiting the Rose Mount Works the members were the guests of the Directors of the firm at a luncheon in the George Hotel, Huddersfield. Mr. B. C. MORTON (Managing Director), in extending a welcome to the members, thanked the members and friends, old and new, of the Manchester Section of the Institution, for such a generous response to the Company's invitation to visit the works at Elland that day. He offered a special welcome to Mr. A. McDonald (Chairman of the Section), to Mr. G. E. Currier (President of the Institution of Gas Engineers), Dr. R. S. Edwards (Chairman of the North Eastern Gas Board), Mr. A. Henshall (Deputy Chairman of the North Western Gas Board), and also to their mutual friend Mr. J. S. Smith, of the Ministry of Fuel and Power, along with Professor A. L. Roberts, Mr. G. H. Bagnall, and Alderman W. Regan, Mayor of Halifax, members of the North Eastern Gas Board and to Mr. C. S. Shapley and Colonel W. M. Carr, both past-Presidents of the Institution.

They would no doubt have studied the Ridley Report with its recommendation for freedom of choice, continued Mr. Morton, and it would appear an opportune moment for the gas industry to take up the challenge irrespective of the long delayed national fuel policy, to stake its claim and develop on systematic lines along a technically defined road of progress. In this direction it was essential that encouragement should be given to channelise the best brains in the country to see that the industry was not in any way lagging. The question of coal supplies was still of first importance; probably the day was not far distant when electricity, with the advent of atomic energy, would release more coal for export and, what was most important, of the right quality for vital by-product recovery. The future destiny might be in their hands, and in this direction he would like to assure them that the contractors, who were dubbed 'the back-room boys' of the industry were willing, as they have always been, to play their part in helping to make a vital technical and practical contribution towards the development of the Industry. At the present moment the contractors were very conscious of their inability to serve the industry as they would like through lack of steel, coupled with the shortage of skilled labour, but they were hoping that this anomaly would soon be removed, and that they could meet their obligations in full measure.

Responding, Mr. A. MCDONALD said one of the features of their organisation was that each year they made a visit to a works. By this means, they retained close contact with the contractors which was essential for the well-being of the industry. Works visits served a double purpose, in that they gave the opportunity of seeing what the contractors were doing on their behalf, and, at the same time permitted members to give them information as to their requirements. They were grateful to these firms, and particularly to Mr. Morton and his co-Directors, for the invitation. In the 28 years since they last visited Elland, many developments had taken place, which were well worth their while to examine. The firm would shortly be celebrating its centenary, and it seemed fitting that the Section should inspect works which have served the industry for a hundred years. Robert Dempsters were to be congratulated on the facilities which they offered to employees, especially the apprenticeship training scheme. Education and training was a most expensive item, but it was a long-term policy which paid dividends. On behalf of the Manchester and District Section, Mr. McDonald expressed thanks to Mr. Morton and the Directors of Robert Dempster & Sons, Ltd., for the welcome and the hospitality they had received.

After lunch the members spent an interesting afternoon touring the Rose Mount Iron Works where they saw various types of gasworks plant being manufactured. Of special interest to the visitors was the model of the Gastechnik purifiers which aroused much attention. At the present time the North Eastern Gas Board is co-operating with the firm in carrying out experimental work in connection with this plant.

On completing their tour of the works the visitors were entertained at tea in a large marquee in the grounds. Mr. A. K. Collinge (Senior Vice-Chairman) moved a vote of thanks to the Directors of Robert Dempster & Sons, Ltd., for their real Yorkshire welcome, and for the hospitality they had all enjoyed. This was seconded by Mr. G. E. Currier.

WALES JUNIORS AT PONTYPOOL

THE first meeting of the new session of the Wales and Monmouthshire Junior Gas Association was held on September 24 at Pontypool, when members were welcomed by Mr. J. Powdrill, General Manager of the Pontypool undertaking. This special general meeting was called to consider proposed amendments to rules of voting power and membership, which were read by the President of the Association (Mr. S. G. Meade, Newport) and accepted.

Mr. C. Banham, Hon. Treasurer, stated in his report that the total balance of the Association was only £136, while the outlay for the publication of papers and booklets amounted to £165.

For Mr. S. G. Meade this was his last meeting as the President, and he handed over to the incoming President, Mr. H. Buckley, Deputy General Manager and Engineer, Pontypool.

In keeping with custom the new President, on behalf of the Association, presented Mr. Meade with a silver salver as a mark of appreciation of his services.

Mr. H. J. Starns, South Wales Area Manager of the Staveley Iron and Chemical Co., Ltd., presented a paper with the title, 'Notes on the Manufacture of Cast Iron Pipes,' which was illustrated with lantern slides. We shall deal with this paper subsequently in the *Journal*.

A vote of thanks to Mr. Starns was proposed by Mr. W. Mason, of the Wales Gas Board staff, seconded by Mr. R. H. Hanford, of Port Talbot.

Councillor W. G. Hillier, Chairman of the Pontypool Urban District Council, and Mr. H. Cook, Clerk of the Council, were guests at the Association luncheon held at the Clarence Hotel, when Councillor Hillier extended a civic welcome.

Mr. D. Morton, Managing Director of the Pontnewydd Tinstamping Works, Pontnewydd, proposed a toast to the Junior Gas Association, and in the afternoon members paid a visit to the Pontnewydd works, after which they were entertained at tea.

CONSULTATIVE COUNCILS

West Midlands Discuss Steel Allocations

ALLOCATIONS of steel to gas boards, meter charges and replies to complaints thereon, protests from two or three districts anent gas charges, and an announcement regarding gas tariffs by special agreement were considered at the quarterly meeting of the West Midlands Gas Consultative Council at Birmingham on September 29, Councillor W. H. Malcolm, J.P., presiding as Chairman.

A communication from the Town Clerk of Lichfield again brought up the question of the increased gas charges in and around that city. From what the Chairman said it seems that Lichfield City Council and other local authorities with certain industrial users, formed a deputation to the Gas Board some time back, and put forward the opinion that gas charges in the area should be on a uniform basis, as well as drawing attention to the fact that the supply of gas was inadequate for the industrial demand. Arising out of the initial joint meeting of local authorities, a Standing Committee was formed to keep these matters under review. The upshot was, said Councillor Malcolm in reading from the Lichfield communication just received, that the Gas Board had indicated that no immediate action could be taken, but the representations would be considered when the experience of operating the new tariffs was reviewed in the autumn of 1953. The Chairman also read that the Consultative Council had endorsed the policy of the Board in relating charges to local costs subject to a maximum price, and said the Board, according to their intimation, was unlikely, in the near future at any rate, to depart from this policy.

Integration and Prices

The letter also contained this information from the Board: 'Nevertheless the Board will press forward, where practicable and as fast as circumstances permit, with the scheme for interlinking and integration of undertakings. As and when this is achieved, gas prices in the districts concerned will be reviewed in the light of the new circumstances, but having due regard to the specific capital cost involved in effecting the integration.'

The Lichfield Town Clerk added that as the Standing Committee referred to was very dissatisfied with the result of the deputation, he had been instructed to ask if the Consultative Council would receive a deputation with a view to placing their views before them. It was agreed that this should take place at the next meeting in December.

There was a similar complaint from the Bridgnorth district, and a similar answer had been given; it was said to include Market Drayton.

The Chairman thought they could do nothing further at the moment under the circumstances, and remarked that when some authorities went to the Board direct, it perhaps did not concern them quite so much.

Alderman J. H. Lewis (Birmingham) thought that the machinery provided by a consumers' council should not be bypassed and they should get down to the subject, so that the machinery established to deal with consumers' interests should function as it was intended to when the measure was introduced.

Councillor Malcolm observed that this had happened on about only three occasions, and in effect had not delayed matters.

Mr. Maddock remarked that Stoke-on-Trent had a very efficient gas undertaking for years and years, and if those areas which had not put in plant as efficient were put on the same rate of charge, then he considered they were penalising those districts which had been efficient.

Councillor E. E. R. Tooby, welcomed as a new representative for Stourbridge, reported that the cost of street lighting there had been referred to the Board. It had recently been increased from 10½d. to 14d. per therm, and as from vesting day the increase amounted to 75%. The Board in reply had sent a large sheet of increases in cost, but part was by way of percentages and part in a lump sum, so that one could not readily arrive at what the figure or total increase in cost was, and what was the percentage. Mr. Tooby also stated that no basis was supplied showing whether the new charges were justified or not, and said for an undertaking turning out 800 million cu. ft. the town received £11,000 for its assets, against its value of £600,000, yet one of the items mentioned was a capital cost increase of £182,000, which he thought should be eliminated.

The Chairman said he would put the question of why there was a 75% increase since vesting day to the Board.

Serious Position

On the problem of the allocation of steel, the Chairman recalled that some months ago they wrote to the Ministry of Fuel and Power on the lack of supplies to gas undertakings in the area. Not being satisfied, on account of the demand for gas for rearmament and the export drive, the Council authorised him to write again pointing out the seriousness of the position. He incorporated with his letter a separate one containing information which the Chairman of the Board had supplied relating to necessary installation work being delayed. He mentioned among other things that the Board had decided to concentrate on plant at Swan Village, Birmingham, Coventry, and Stoke-on-Trent, where there was more likelihood of additional production at an early date, which would result in considerable delay at other undertakings, including Smethwick, Walsall, and Nechells (Birmingham); and as to the extent of the shortage of steel, the Board was only receiving half the amount required, and could only make small allocations to the latter projects.

The reply they received was as follows: 'With regard to the allocations of steel to be allotted to the West Midlands Gas Board, under the present arrangements for the distribution of steel to the gas industry an over-all allocation is made by the Cabinet sub-committee to this Ministry, which passes on the allocation to the Gas Council for distribution among the Gas Boards. The quantity allocated by the Gas Council to each Gas Board is a matter entirely for the Council's discretion, the component members of which, as you will appreciate, are fully aware of the relative importance of the needs of the various boards. The Gas Council have strongly represented to this Ministry that the steel allocation to the gas industry since steel rationing was reintroduced, has been totally inadequate for the gas industry's purposes, though some increase has been secured for Period IV of this year. In view, however, of the paramount requirements of rearmament and the export industries, it seems that it will not be possible yet for the industry to obtain its full requirements of steel. This is unfortunately resulting in delay in the completion of important gasworks projects throughout the country.'

Pressure on the Ministry

Alderman Evanson (Newcastle-under-Lyme) considered that pressure should still be used on the Ministry, especially as it was reported that the steel position was getting easier, or likely to do. Steel was being used by other areas which were not so important industrially, and they might consider a deputation to the Ministry.

The Chairman did not think they could act in that way, because the Gas Council distributed the entire allocation. Moreover, this was the second time they had made this effort within the year. He might say that in the West Midlands they had received a major portion of the steel allocation, and they had done fairly well in that respect, but unfortunately were still 12,000 tons of steel down. It was then decided that the matter be kept in mind.

Special agreements relating to gas tariffs were mentioned by the Chairman, who stated that consumers on Schedule 'E' using over 50,000 therms were entitled to participate. A letter on the subject stated, after laying down what is required on the form of application, that 'as a result of detailed consideration, it was found that similarity of load characteristics permitted the classification of the applications in groups. It has been the aim of the Board, while giving each applicant individual consideration, to ensure that in like circumstances comparative reductions from the higher District prices should be offered, and the individual terms have been determined accordingly.'

Regarding meter charges, a letter of

complaint was read from a Birmingham firm that they were now being charged 11s. per quarter for a replacement. A letter from the Board explained that nationalised industries were no more immune from the inflationary spiral than other industries, and additional charges which had fallen on the Board amounted to £5 million per annum. The Board was almost unique in having abolished meter rents for prepayment and credit domestic consumers, but they were unable to do this in the case of commercial and industrial consumers enjoying low tariff prices owing to the high cost of new meters. Therefore, it had been decided to charge a rent for primary meters of not less than 700 cu.ft. per hour capacity installed on and after April 1, 1952. This would apply to meters which were exchanged as well as to new installations. The revised rentals would also apply to other meters now being charged at the higher scale.

Councillor Hewitt (Stoke) considered that rentals would be fairer if spread generally, and in any case, why should a replacement be charged a rent?

Mr. G. le B. Diamond (Chairman of the Board) replied that the Board was concerned to do its best for consumers, and to hold the scales as fairly as possible. It was trying to iron out the many anomalies that existed, although it could hardly hope to please everybody. The commercial and industrial users were charged a lower rate for gas in quantity, and the cost of meters in the old days was nothing like what it was today; hence they felt bound to make this charge.

Mr. J. Fallon asked whether the charge for domestic meters did not come into the cost of gas supplied.

Mr. Diamond agreed that when they put up the price of gas this was taken into account, and they also took the line that people who had gas supplies at a cheaper rate should pay for their meters.

Rowley Regis Town Council also reported complaints from local tradespeople regarding the new gas tariff, and the Town Council itself expressed serious concern about the new charges to local authorities, traders and industry. As certain districts after representations had secured reductions, the Town Clerk said his Council desired to know whether Rowley Regis could obtain a similar reduction.

The Chairman stated that the Gas Board had also been sent the letter, and in a reply explaining the local position the Board, after a detailed examination of the case, did not feel justified in acting as they had done in the districts referred to. But the Board assured the Town Clerk that a review would be made following 12 months' operation to see what adjustment if any may then be made.

Mr. Hewitt commented that the people who made most noise were more likely to get a reduction, and Alderman Evanson remarked that this might also apply to steel.

North Eastern Council Rejects Board's Price Proposal

THE North Eastern Gas Consultative Council, meeting in Leeds on September 29, rejected a proposal by the Gas Board to increase the margin on gas appliances from 25% to 33⅓%. Dr. R. S. Edwards (Chairman of the Board) said that since 1949 the cost of selling appliances had increased considerably owing to increased wages to showroom staffs to cover the rise in the cost of living, and the existing margin did not meet this increase. The margin charged on appliances by many other Boards throughout the country was 37½%, but they had decided to follow the lead of the Gas Council in recommending a margin of 33⅓% on the cost of appliances to them from the manufacturers.

Call for Reconsideration

Alderman H. Sutcliffe (Leeds), in successfully moving a resolution calling on the Board to reconsider its proposal, said the Board should make a searching enquiry into its selling organisation. The proposal of the Board was the most disquieting announcement to come before the Council. The long-suffering public had become used to increase after increase in the price of gas and also in installation costs. The Board seemed to have developed a rhythm for increases, he added. How could they expect to maintain the level of sales during this period of reduced public spending power? There had been some consistency in the increase in the price of gas and also the increased installation charges, as they had been brought about by rising costs outside the control of the Board, but there was a significant difference about this new margin proposal, for the selling costs were within the control of the Board.

Dr. Edwards said there had been a thorough investigation into the running expenses of the selling organisation; it was a question always under review. He said that the 25% profit margin was chosen as an average that existed within the area before nationalisation and, as such, was only an experiment which was subject to fluctuation when the Board thought necessary.

In a statement concerning a recent gas fatality in Leeds, which was read by Alderman Sutcliffe, it was announced that representations were to be made by the Leeds Gas Consultative Committee to the Master Plumbers' Association, urging them to make pressure gauge tests in all cases where called to deal with gas services and fittings; also that co-operation be sought between the Board, the health authorities and, if necessary, the police, where there was reason to doubt the efficiency of pipes and fittings, and that the widest publicity be sought to impress on landlords and tenants the great danger which might result from bad or incompetent workmanship, from inadequate inspection and supervision of installations, and the necessity for the prompt notification of any suspected faults.

BECKTON BOILERS

Interior view of the new Babcock and Wilcox boiler house at the Beckton works of the North Thames Gas Board, the inauguration of which was referred to in last week's JOURNAL. *Each boiler has an output of 40,000 lb. of steam per hour at a superheater outlet pressure of 500 lb./sq. in. and a final temperature of 750° F.*

Ideal Home Exhibition

THE Ideal Home Exhibition of 1953 will be held at Olympia, London, from March 3 to March 28. Because many overseas visitors are expected among the more-than-a-million visitors to the exhibition in Coronation year, the organisers are arranging special presentations of the latest ideas in British industry.

One corporation is spending thousands of pounds on an exhibition within the exhibition. Another trade is pooling its resources to enable rival firms to display side by side the proof that British is best. Entirely new products, fresh designs, and improved models—both for home and foreign markets—are promised from every branch of manufactures for the 12 acres that form the world's largest retail shop window. Applications for space are pouring in. Trade seems set fair for the Coronation.

Mr. H. V. Pye, son of Mrs. Ellen Pye, whose death was recorded last week, is Unit Controller and Station Engineer, not at Cheltenham, as reported, but at Dursley, in the Cheltenham Sub-Division.

MIDLAND JUNIORS VISIT DE LA RUE WORKS

ON the afternoon of September 19, members of the Midland Junior Gas Association, and their wives, visited Portobello works, the foundry and main production unit of Thomas De La Rue & Co., Ltd., at Warwick. The guests were welcomed by Mr. M. B. Jordan (General Sales Manager) and Mr. J. R. Knott (Group Works Manager), who explained the nature of the work undertaken at the factory, and the party then split into small groups to tour the works, where they were shown various stages in the manufacture and assembly of cookers and boilers.

At the end of the tour the visitors gathered in the works canteen for tea, when Mr. R. B. Watkins (President of the Association) thanked the Company for an interesting visit.

The party then moved off to the Hippodrome at Coventry where they saw 'Rose Marie on Ice,' being entertained at dinner after the show by the West Midlands Gas Board.

Technological Universities Needed

OPENING an exhibition at the Science Museum on October 2 to mark the centenary of Sir William Ramsay's birth, Lord Woolton, Lord President of the Council, said that pure research work had led to vast developments of our industrial life.

In so far as discoveries had been applied to industry in this country we had been fortunate, but much of the work of British scientists had not been applied in this country, because of our failure to train, and to absorb into our industrial life, chemical engineers and applied physicists—those practical scientists whom we had come to call 'technologists.'

If we were to get the national benefit that fundamental scientists were offering to us, it would be necessary for us to alter our practices, and to create, in this country, technological universities with the status, and the distinction, given to our existing universities: and, through them, to train a race of people who would see that the successors to the great scientists whom we honoured today, met with the encouragement, and the rewards, that were proper for the services they rendered to the community.

The Seventh Annual Report of the North Western Fuel Luncheon Club records a fall in membership from 164 to 147, due mainly to removals from the district and deaths. The Committee has nominated Mr. Ernest West, Managing Director of West's Gas Improvement Co., Ltd., one of the Vice-Presidents, for election as President for the eighth annual session in succession to Dr. Franz Kind.

Long Service in Wales

AT an informal luncheon at the Langland Bay Hotel on September 25, Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, on behalf of the Swansea group committee, presented long service awards, and one posthumous award, to 14 members of the undertakings controlled by the Swansea group. The awards read 'In rocognition of 40 years' service and as a mark of appreciation and goodwill,' and were signed by the Chairman and Mr. R. S. Snelling, the Deputy Chairman of the Board, who was also present. In addition each received a voucher for 20 guineas. The combined service of the men receiving the awards totalled 614 years.

It was an honour, said Mr. Mervyn Jones, to have such a remarkable achievement of service. Each man had done more than 40 years and it showed that there had been good service on the part of a person with a record of that kind.

'It can be said properly and fairly,' said the Chairman, 'that the gas industry continues to give as good a public service as ever it has and that the public service is continually improving and that we are not unmindful that we are a commercial venture, which must pay its way.'

Among those who received the awards was Mr. Ernest Ablett, chairman of the Swansea Group, which embraces Pontardawe, Pontardulais, Gowerton, Ammanford and Llanelly, and is also Engineer, Manager and Secretary of the Swansea undertaking. He has 47 years' service to his credit.

Mr. Ablett received the award on behalf of the late Mr. James Jones, Secretary of the Ammanford undertaking, who had been in the gas industry for 40 years and will convey it to the family.

Others to receive the award were:—

Swansea: William Awberry, gas fitter (retired), 40 years' service; William Bevan, chief coin collector (42); Albert E. de Gay, accountant (44); Frederick C. Jones, cashier (40); William Wynn Mills, rental superintendent (44);; William J. Thomas, supervisor, rental department (42); John Thompson, works foreman (40); David Wilkins, district inspector (49).

Llanelly: William Bevan, labourer (retired), 49 years' service; John Gwynne Brown, works superintendent (46); William Nock, gas fitter (44); Graham Phillips, foreman fitter (retired) (46).

A WARM INSTITUTE FOR THE BLIND

CONSIDERATIONS of safety, ease of control of temperature, and saving of labour led to the choice of gas for warming the holiday home of the National Institute for the Blind at The Haven, Holbeck Hill, Scarborough.

Our photograph shows an installation in one of the rooms of 'Sapphire 20' balanced flue heaters, manufactured by Cowper Penfold and Co., Ltd., Imperial Court, 6, Basil Street, Knightsbridge, London, S.W.3.

THE *JOURNAL* REVIEWS

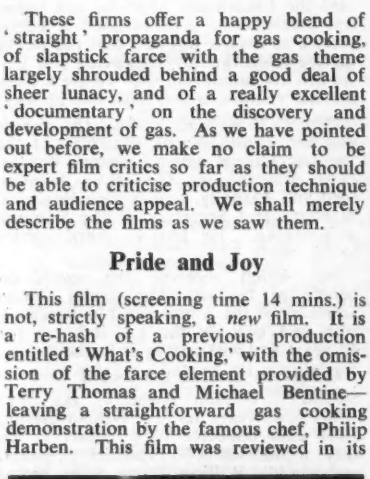
New Films for the Industry

THE first films for the gas industry were produced in 1934—since when over fifty different films have been made. The standard of the films has been generally high, and it was consequently with keen anticipation that we attended on October 8, a Press pre-view of three new Gas Council productions at the British Council Cinema, Hanover Street, W.1.

These firms offer a happy blend of 'straight' propaganda for gas cooking, of slapstick farce with the gas theme largely shrouded behind a good deal of sheer lunacy, and of a really excellent 'documentary' on the discovery and development of gas. As we have pointed out before, we make no claim to be expert film critics so far as they should be able to criticise production technique and audience appeal. We shall merely describe the films as we saw them.

Pride and Joy

This film (screening time 14 mins.) is not, strictly speaking, a *new* film. It is a re-hash of a previous production entitled 'What's Cooking,' with the omission of the farce element provided by Terry Thomas and Michael Bentine—leaving a straightforward gas cooking demonstration by the famous chef, Philip Harben. This film was reviewed in its

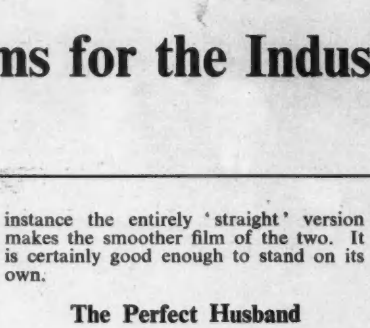


Philip Harben at work.

entirety when it was first released (see page 217 of the *Journal* for July 25, 1951), and we need add nothing here except to say that this extract from the original provides in itself a first-class piece of propaganda for gas cooking and as such probably serves a more useful purpose than when interspersed with snatches of frivolity which tend to camouflage the real object of the film. We incline to the view that in this instance the entirely 'straight' version makes the smoother film of the two. It is certainly good enough to stand on its own.

The Perfect Husband

As if there ever was such a man! This film (screening time 20 mins.) features Gilbert Harding, as himself, and Richard Hearne, as Mr. Pastry. The latter's many



Mr. Pastry lights the fire.

fans will delight in this further extravaganza, while the millions to whom Gilbert Harding is still just a petulant voice will enjoy seeing this 'stormy petrel' of the B.B.C. pouring out his withering witticisms through the medium of the screen. Mr. Harding, a knowledgeable man, of mature years, and a confirmed bachelor, has brought personal independence to a fine art by installing in his home up-to-date labour-saving methods. He imparts his knowledge and advice to his old friend of boyhood days —Mr. Pastry—but his words of wisdom fall on deaf ears.

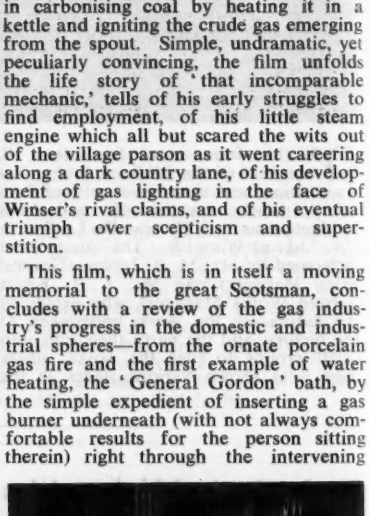
There will always be differences of opinion on the subject of 'straight' versus disguised forms of propaganda. The 'gas' interest in this film is largely in the background and whether it will be recognised at all by the average lay audience is a matter of some doubt. In a community with such differing standards of humour as ours, public reaction to any form of comedy is always in doubt.

The Vital Flame

As we said at the outset, this film (screening time 25 mins.) is a really excellent production and is one of the best 'documentaries' we have seen. Its reception at the pre-view was cordial, and it was a happy thought that prompted the Gas Council to include in the specially invited audience Miss Barrows, a great-great-grand-daughter of William Murdoch, on whose life the film is based.

'The Vital Flame' is a fascinating page of social history, beginning about the middle of the eighteenth century when William Murdoch started his experiments in carbonising coal by heating it in a kettle and igniting the crude gas emerging from the spout. Simple, undramatic, yet peculiarly convincing, the film unfolds the life story of 'that incomparable mechanic,' tells of his early struggles to find employment, of his little steam engine which all but scared the wits out of the village parson as it went careering along a dark country lane, of his development of gas lighting in the face of Winser's rival claims, and of his eventual triumph over scepticism and superstition.

This film, which is in itself a moving memorial to the great Scotsman, concludes with a review of the gas industry's progress in the domestic and industrial spheres—from the ornate porcelain gas fire and the first example of water heating, the 'General Gordon' bath, by the simple expedient of inserting a gas burner underneath (with not always comfortable results for the person sitting therein) right through the intervening



Winser demonstrates his process.

years to the latest streamlined appliances and the vast commercial and industrial plants of the present day.

The commentary is by James McKechnie and the film was produced and directed by John F. Stewart, A.R.P.S. The other two films were produced by the Regent Film Corporation, Ltd. All three are worthy additions to the Gas Council's film library and, like the rest, are on free loan to approved borrowers.

A Novel Glover-West Vertical Retort Setting

THE September issue of *West's Gas* contains an article descriptive of the gasworks of Gaz de France at Nanterre. A novel feature is a Glover-West continuous vertical retort bench in which heating is by cold producer gas from outside generators. Instead of re-heating the producer gas, as hitherto practised, the secondary air is heated by transfer from the waste gases. Alternative coal gas firing is also provided for. The arrangement is shown diagrammatically in the figure here reproduced.

The retort house contains one bench of six settings and two benches of four settings, each setting containing four retorts of the standard 40-in. model. These settings are heated by cold producer gas generated in a central station of mechanical producers of the CF20 type. The first bench of six settings built in 1930 with integral producers was reconstructed in 1934 for cold gas heating similar to the two other benches built in 1931.

The setting brickwork is supported on a 'girder floor' to which the coke extractors are also attached. The retort bench bracing also supports the operating platforms, the overhead coal bunkers, and the two band conveyors above them. Each retort is surmounted by a cast iron intermediate hopper fed through a valve fixed to the corresponding compartment of the coal bunkers.

The retorts are constructed in silica bricks. The heating is effected by horizontal stages of burners regulated from the outside of the bench. The fuel gas, coming from the generators described below, is distributed to the burners by way of vertical pipes with individual valves to each burner. The primary burners are regulated from the recuperator side, the auxiliary burners from the other side of the bench.

The system of heating differs essentially from the standard system by the fact that at the outlet from the horizontal combustion chambers the products of combustion are collected in vertical flues arranged in the brickwork which conduct them to recuperators at ground level placed in the position usually occupied by the built-in producers. Here a portion of the sensible heat is transferred to the secondary air after which they pass to the waste heat boilers.

The face of the settings opposite to the recuperators is covered with insulating material 10 cm. thick and the upper surface of the settings is protected by 16 cm. of insulating bricks covered by a 3 cm. layer of cement.

Producer Gas Generators

The fuel gas for the retort benches is produced in a central generating station containing six mechanical producers of the type CF20, self-supporting in steam with automatic feed and mechanical clinkering. Generators of this type were employed for the first time at Nanterre for the heating of Glover-West vertical retorts.

The body of each generator consists of a double sheet steel envelope which constitutes a boiler recovering in the form of steam at 115 lb. per sq. in. a portion of the sensible heat of the gas. This boiler is divided into two sections upper and lower, connected by tubes between which the gas passes and is surrounded by an external sheet of hot gas. Sufficient steam is produced for the service of the grate with a surplus for works purposes. Each generator is surmounted by a cast iron charging hopper closed at its base with a cone distributor and at the top by a charging valve with water seal surmounted by an upper hopper connected with the individual feed bunker arranged in the upper stage of the building. This bunker contains a reserve equal to 36 hours operations. Automatic charging is effected in three stages in 60 seconds: (1) emptying and closing the lower hopper; (2) refilling the upper hopper; (3) refilling the lower hopper.

The several mechanisms are driven by compressed air which is distributed to the cylinders of the individual mechanisms by a rotary valve coupled to an electric motor which is put in and out of action by an electric relay. Charging is thus effected at determined and regulated intervals without any manual aid.

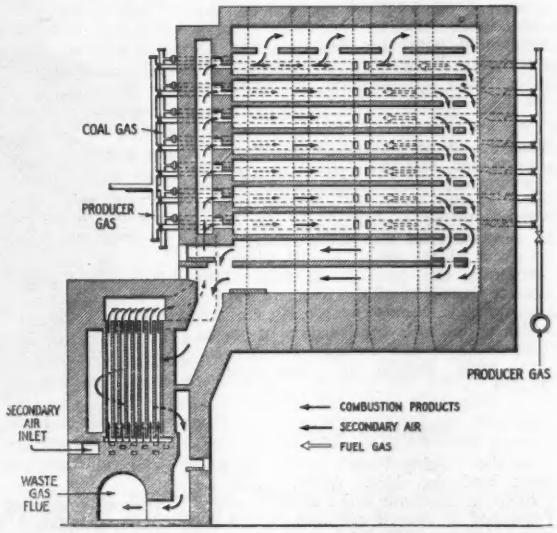
Clinkering is effected by a rotary stepped grate driven by an electric motor through variable speed reduction gear. The ashes fall into a water bosh integral with the grate and are extracted from the bosh by a fixed plough which discharges them into a wagon.

Gas from the generators passes through purifying apparatus consisting of a cooler-scrubber, an extractor fan with water injection forming a rotary washer both completing the purifying of the gas and the separation of water. This apparatus is installed with the blowing fans in the machinery building built in tandem with the generator house.

Nanterre Gasworks

Nanterre gasworks, situated in the western suburb of Paris, serves not only a large part of that suburb but also, by means of high pressure mains of a total length of some 80 miles, a very extensive region along the valleys of the Seine and the Oise, serving, that is, a population of about 400,000 inhabitants.

The original works, dating from 1902, had in 1929 a daily capacity of 2,825,000 cu.ft. of gas made partly in horizontal retorts and partly in intermittent vertical chambers. It was completely reorganised and modernised between 1930 and



Glover-West setting at Nanterre

1934 without interrupting production and to-day it has a total daily capacity of 8,830,000 cu.ft. This gas is normally made in three benches of Glover-West continuous vertical retorts built on the site of the horizontal retorts which were demolished and in two benches of intermittent verticals.

The Glover-West retorts were constructed under licence by the Cie. Gle. de Construction de Fours who also carried out the adaptation of the original retort house building, the installation of the coal handling plant above the settings, and the construction of the whole of the buildings and apparatus of the producer plant, the waste heat recovery, the new boiler plant, and the system of telpherage.

The works is situated on the banks of the Seine which facilitates the supply of coal part of which is transported to the works by water. The retort house is approximately at right angles to the river and terminates in a coal tower which is connected by conveyor to the coal storage ground which extends along the river bank. The producers are installed in a building distinct from but parallel to the retort house. Telpherage connects the retort house and the producers to the coke screening plant and to the coke storage ground which it was necessary to place on the other side of a roadway traversing the works and on the banks of a waterway connected with the Seine.

New World 'Eighty Four' Cooker

OF recent years the rectangular cabinet form of domestic gas cookers has prevailed, in which both oven and hotplate fall within the length, breadth and depth dimensions, these dimensions themselves being linked with the 'standard kitchen unit' dimensions of 36 in. high × 21 in. wide × 21 in. deep proposed by the Ministry of Works in 1944. (*Housing Manual*, 1944, *Housing Equipment*, 1944, B.S.1195:1944.) The result has been that limitations have been placed upon the appliance designer, particularly in respect of hotplate burner size and layout.

One of the chief demands of redesign has been the more generous spacing of hotplate burners. Four boiling burners are considered essential and the 8 in. centre-to-centre dimension which previously was the best on a four boiling-burner hotplate has for some time been considered unduly restricted, while many foreign specifications to which appliances for export must conform call for appreciable increases in such spacing. Associated with this has been the demand for higher-powered burners, together with the need for incorporating the grill on the hotplate.

An oven 18 in. wide has by experience been found to provide all the capacity needed for customary cooking requirements while avoiding the danger of too wide a door swing in confined spaces. Manufacturing problems and the desire to save material also set practical limits to oven width, while overall width for containing the oven needs to be little greater than that of the oven itself. For the hotplate, however, more than this width is desirable for freedom of design. This leads to the thought that hotplate and oven should be independently treated.

Separate Units

In the 'Eighty Four' cooker the hotplate and the New World oven are treated as separate units which, though fashioned to accord with the overall design, can be considered individually from the point of view of technical requirements. The overall measurements are:

Height:	36 in. to hotplate level; 56 in. to splashplate top.
Width without gas match:	24¼ in.
Width with gas match:	25 in.
Depth (including tap handles): ...	22 in.

The hotplate itself is 24 in. wide × 19¼ in. deep, while the oven casing excluding the Regulo knob and doorhandle measures 28½ in. to crown tray, 22 in. wide, and 19 in. deep. Oven interior dimensions are 18 in. wide × 16 in. high × 14 in. deep with door opening 18 in. × 16 in.

Four boiling burners, made up of two identical pairs, a covered centre-burner grill, and a single back oven burner are fitted. Approximate ratings are:—

Front short ring burners	12,000 B.Th.U. per hour.
Rear long Rado burners	10,000 B.Th.U. per hour.
Grill ...	14,000 B.Th.U. per hour.
Oven ...	12,000 B.Th.U. per hour.

Front-reading Regulo and fine-control taps are fitted. The taps lock in the 'off' position and require to be pushed in before they can be turned on. The oven door covers the full width of the front and has a characteristic handle. The handle has a positive ball-catch stop in the open position, and operates a door fastening of the cam-latch type. Readily accessible adjustable hinges of a patented form and soft bedding attached to the door are used. Oven products are vented through rear ducting to a

vitreous-enamelled grille at the centre of the splashplate. The depth of the outer casing and of the splashplate is such that it covers this flue duct and allows the cooker to be set right up to the wall without fear of smothering the oven burner flames or staining the wall.

This construction not only presents a radically new outline, especially in side view, but also allows considerable freedom of access to the crown tray under the hotplate.

The foundation of this New World 84 cooker is the cantilever principle of construction, which is the subject of patent applications.

The oven is a single sealed unit built up from individual flanged panels bolted together and in turn secured by screws to a rectangular aluminium alloy front frame. This unit is lagged with glass fibre covered with aluminium foil held in position round the top, sides, and back by bands of aluminium wire.

The oven door is a simple structure with the outer panel secured by only two screws. The interior door panel is attached by means of screws and captive nuts to an alloy frame. Glass fibre and aluminium foil lagging are held between the interior panel and the outer panel, the latter being clipped over the frame at the top and sides and secured by the two screws at the bottom.

The hotplate is braced at the front by the tap rail manifold which serves also as front structural member, being attached at the ends to the forward points of the cantilever side arms. Sheet aluminium spillage guides at the sides, the tap shield at the front, and the burner support at the rear, serve to guide spillage well towards the centre of the loose crown tray.

There is thus formed a hotplate overhanging the sides and the front of the oven casing and giving the desired increased area. The four boiling burners are staggered so that the two back burners are closer together than the two front burners. This makes it possible to use straight shanked burners with each alloy burner head in line with its appropriate tap. The fine-control taps used for all the boiling burners have disc handles incorporating positive marking of the 'On' and 'Off' positions as well as the further 180° turn from full-on to an adjustable low-simmering setting. Thus all hotplate burners are simmering burners.

The Grill

The grill burner carries side arm supports for the composite grill frets, with a set screw in one arm to enable the clearance back-to-front to be adjusted. The grill cover also rests on these arms and when it has been lifted off, the grill burner and frets can be removed as one unit, the burner inlet tube being at the top and forming a convenient lifting handle.

The gas supply is governed. The 100 DA governor is at the rear, protected by the burner support casting and is connected to a cast gas feed rail attached inside the left-hand cantilever arm. This feed rail in turn leads to the gas rail. Special arrangements are made by means of a prefabricated oven feed system for connection between the oven tap at the right-hand end of the gas rail and the single oven back burner. A special accessible filter housing is carried on the oven tap together with a compression cone joint.

The vitreous-enamelled cast pan supports fit into specially formed recesses on the top and are of a new twin-looped pattern reversible back to front, but not interchangeable from right-hand to left-hand. The loops over the burner heads form a stable support for even the smallest pans. For ease of cleaning, contours of both pan support and hotplate top have been kept as simple as possible consistent with satisfactory technical requirements. The vent in the centre of the hotplate top registers with the grill cover vent to deliver grill combustion gases directly upwards.

The cooker is completed by a vitreous-enamelled splashback and upward-folding plate-rack with independent levelling.

MANUFACTURE OF CAST IRON PIPES

By H. J. STARNS, M.S.M.A., Assoc.Inst.Gas E.,
South Wales Area Manager, Staveley Iron and Chemical Co., Ltd.

From a Paper to the Wales and Monmouthshire Junior Gas Association

THE cast iron pipe has rendered valuable service to mankind over a long period of years, and instances of cast iron mains giving service for over 200 years are on record. There are very many towns and cities in the continents of Europe and America still being served with gas and water supplies by cast iron pipes over 100 years old.

The pipe foundries of the Staveley Iron and Chemical Co., Ltd., have been located at the same place for upwards of 250 years. A document in the company's possession shows that furnaces were in operation in 1702 under the title of Staveley Furnaces. A limited company being formed in 1863, the present company has emerged through these long years of uninterrupted and progressive activity with a high reputation for all the many and varied products which they now produce. During the last 27 years, vast changes have taken place in the production of cast iron pipes; the ideas and inventions of scientists and engineers have been pooled, so that rule of thumb methods of the very early years have been superseded. Production, therefore, has of necessity to be controlled by the metallurgist and the engineers. Today, this takes place in and from modern laboratories where the scientist and the engineer work side by side.

Uniformity in Practice

Where a large foundry exists, which is split into sections, uniformity in melting practice is most essential, so that each section is based on a standard practice which is controlled by the metallurgical staff. Sand as well as coke is essential to every foundry; materials for forming cores, sand linings, protective coatings, jointing materials, have to conform to rigid specifications and are all embodied in the effective control of the metallurgical staff.

The laboratory for sand testing is very interesting. It contains two miniature mills, which are replicas of those installed in the works, one for sand and oil bonding, required for the manufacture of socket cores, and the other, for sand and claywash bonding, required for sand lining. An electrically-heated oven, with a fan for the extraction of noxious fumes, bakes the test pieces of oil-bound sand cores. These test pieces are shaped similar to those used in the testing of concrete and a similar apparatus is used. Various other types of apparatus for testing green and dry strengths, permeability, compression and moisture, under standard conditions, are also in use. The sand used in the foundries is tested in the plant every 5 min. during the working day.

A most interesting feature in the general physical laboratory, is the apparatus used for research work on corrosion. Test pieces of iron are hung on radial glass spokes revolving on a drum and these are immersed in water for 1½ min. during each revolution. As a revolution occupies 15 min., ample time is available for accelerated oxidation. Soil analysis and other physical tests are, of course, also carried out here.

Methods of Production

In the micro-examination room, micro-examination of metals is carried out, as structure examinations are of prime importance, on pipes which depend on heat treatment after being cast. Accommodation is also provided for a dark room in connection with the necessary photographic work. Test bars are taken from every make of iron, and test rings are cut from every make of spun pipes. These are taken to the mechanical testing room where tensile, compression, shear, and transverse tests are carried out, together with hardness tests.

Cast iron pipes are produced by three methods—*viz.*, (1) Vertically cast or pit cast, (2) centrifugally by the sand spun process, and (3) centrifugally in steel moulds referred to as metal spun pipes.

In the years just preceding the first world war, cast iron pressure pipes were made by the vertically cast or pit cast method. Only diameters over 24 in. are now made at Staveley by this method. In each case, cast iron moulding boxes are used. The moulding box is in halves, bolted together, and is bell-mouthed at one end, the remainder concentric to the body of the pipe to be made; the moulding boxes are perforated for the entire length to assist in the escape of gases during the casting operation, the one bell-mouth end being large enough to contain the socket mould.

The moulding box is held on the side of the pit with a clearance at the bottom, to handle the socket pattern, which is bolted to the base of the moulding box, forming a centring point to take the body pattern. The annular space is filled and rammed tightly with moulding sand. This operation being completed, the body pattern is withdrawn and the socket pattern removed, thus leaving in the moulding box the external form in sand of the future cast iron pipe, together with a pouring space. The whole surface is then treated with blacking in a liquid form to give ease of stripping later. The sand lining or mould is then subjected to a drying out process by gas burners installed at the bottom of the pit, producer gas being used.

Core Preparation

A core is prepared on a hollow cylinder with vent holes at close intervals. The whole cylinder is supported horizontally on bearings and is slowly rotated, being covered with a wood-wool binder on to which a layer of clay and sand is daubed, and made cylindrical by rotating against a knife edge. The finished face is composed of suitable materials to serve as a parting medium between the core and the subsequent pipe. It is then thoroughly dried in a stove before use.

The body core of the correct diameter according to the thickness of pipe to be cast is inserted in the moulding box after the socket core is in position. The annular space gives the thickness of the pipe to be cast and is controlled by the external diameter of the body core. The class of the pipe to be produced depends upon this thickness of metal, such as Class B for 400 ft. head hydraulic pressure, 600 ft. for Class C, and 800 ft. for Class D. British Standard Specification calls for the charge in the cupola to be made up of best tough grey foundry iron with clean scrap of good quality.

After the pour has taken place, the casting is allowed to cool in the moulding box before stripping, fettling, gauging, and testing take place.

Having withstood the hydraulic test pressure appropriate to the class of pipe made, the pipe is then heated to the temperature of the bath of Dr. Angus Smith's solution in which it is later immersed for a predetermined period. It is afterwards withdrawn, surplus solution allowed to drain off, and, on drying, the pipe is then ready for despatch, after being suitably stencilled. Pipes for the gas industry are coated on the outside only, and are brushed externally only over the solution dipping tank and not totally immersed in the solution.

This method of casting pipes continued up until 1914, when centrifugal methods of casting were being explored, the Delavaud method in a steel mould, and subsequently, about 1925, in a sand lined mould.

The Sand Spun Process

In the sand spun process, cast iron flasks are used which are perforated as in the moulding boxes for the vertically cast, but in this instance the flasks are fitted with steel tyres and are perfectly balanced as they have to rotate truly about their longitudinal axes.

The flask is lowered vertically on to the socket pattern. The body pattern is then lowered into the flask and is centralised at the base by its conical end, giving a true annular space for the sand mould, concentric with the flask. Specially graded sand with a clay wash binder is then fed mechanically into this annular space, and is either jolted or pneumatically rammed (according to the diameter of pipe being produced) during the process of feeding until the annular space is completely filled and consolidated. An end plate is used during the withdrawal of the body pattern, after which a wash of liquid blacking is applied to the face of the sand lining. The flask with its sand lining is lowered to an horizontal position and the sand mould dried out by a gas burner. The flask is then transferred to the spinning machine, the driving rollers of which receive the tyres fitted to the flask. The sand lining is carefully examined before fitting the socket core in position. The socket core is made of specially graded sand with oil as a bond and baked so that it is capable of withstanding the stresses imposed upon it during the casting operation, and afterwards of being easily broken down.

As previously mentioned, the sand, with its binder for the sand lining, and the socket cores are continually being checked and tested, as upon both vitally depends the final product. The protective hood is lowered over the flask, when the flask starts to rotate. Loose sand is then blown out by compressed air. Each spinner is fitted with a tipping ladle lined with refractory material into which is poured sufficient molten metal to produce a pipe of a predetermined class or thickness. When the flask reaches the required speed, the whole of the ladle is discharged on to the rotating sand lining, which is kept rotating until the whole of the metal has solidified.

On coming to a standstill, the flask is removed, the socket core broken down, and the pipe allowed to cool naturally in its sand mould. The flask containing the pipe is then placed in a stripping machine, which is equipped with a hydraulic ram which gradually pushes the pipe and its sand lining out of its flask. The sand drops through the gratings on to a conveyor below floor level and is taken away for cleaning and re-use. The pipe is taken on to a gantry for internal grinding by emery wheels in water, thus eliminating dust, after which the necessary external fettling is carried out. It is then weighed and tested hydraulically to the required pressure, record of which is kept, prior to coating.

Re-Heating

The pipe then proceeds to a re-heating chamber, in which it is brought up to the temperature of the bath of Dr. Angus Smith's solution, into which it is immersed for a predetermined period. After allowing surplus coating to drain away, the pipe rolls on to cooling gantries from which it is ready for service after being stencilled.

In the sand spun process the molten metal is continuously subject to centrifugal force, gas pockets are eliminated, and no centre core is used. Hence the casting is free from blow holes or solid inclusions. The metal is more compact and internal stresses are avoided. Thus, a pipe of reduced thickness of barrel compared with the pit cast pipe of similar diameter is capable of resisting normal working stresses in a main when laid. Coupled with this, there is the added advantage of a longer pipe, which gives increased economy in handling and laying.

As outside diameters for all cast iron pressure pipes are standardised, the carrying capacity of a sand spun pipe, with its greater internal diameter, is more than a pit cast pipe. It has greater resistance to hydrostatic pressure, is more resilient, and has a higher resistance to shock. By naturally cooling without chill in its sand-lined mould, no after heat treatment is necessary. The pipe can be easily cut, drilled, and tapped with the usual equipment for this work, and last but not least, its section is of even thickness throughout.

The production of pipes made by the sand spun process originally ranged between 4 in. and 24 in. diameter, which received very great popularity; it was soon found, however, that it was impossible to cope with the demand, particularly in the small diameters, so it was decided to construct a plant to spin pipes by the metal spun process.

The Metal Spun Process

This decision having been made it was decided to install a plant, capable of producing the smaller diameter pipes, covering a range of 2 in. to 6 in. diameter in 12 ft., 4 m., 18 ft. and 5.5 m. lengths.

As the name implies, the metal spun pipe is cast in a metal mould, which is very accurately machined and is made of alloy steel the internal dimensions corresponding to the external profile of the pipe to be cast. The steel mould is made to revolve in a water jacket for cooling purposes, and the complete assembly, or spinner, is capable of being moved along an inclined track, at the higher end of which is situated a tilting ladle, from which the flow of molten metal can be regulated along a half-round feed trough for the whole length of the mould. To commence the operation of casting, the spinner is placed at the top of the inclined track, near the tilting ladle, after the socket core is positioned. The mould is rotated, and, at a predetermined speed, the tilting ladle allows a flow of metal to proceed along the half-round feed trough. As soon as the socket portion is completely filled, the spinner as a whole commences to travel downwards at a regulated speed, causing a ribbon formation of molten metal to be thrown against the inside of the rotating steel mould. This continues until the full length of pipe is cast. By the time that the spinner is brought to a standstill the metal is solidified to permit expanding tongs to be inserted for the withdrawal of the pipe from the mould, whence it is taken by a conveyor to a furnace for annealing.

Metal spun pipes are cast with a chill, caused by the circulation of water around the rotating steel mould, the molten metal being poured on to a cool metallic surface. This results in quick solidification, giving a crystalline surface of the outer skin.

A Vital Factor

The pipes consequently require heat treatment—a vital factor in all pipes produced by this process. Accurate time and temperature control is of great importance. The pipes are weighed and visually inspected before they pass very slowly into an annealing furnace, entering the pre-heating zone, annealing zone, and cooling chamber, before again making contact with the atmosphere. The furnace is fired by clean coke producer gas under constant pressure through a multiplicity of burners giving a clear furnace atmosphere. The time during which the pipe remains inside the furnace and the temperature of the interior, are very important factors and are kept under strict control, which ensures perfect conditions throughout each pipe.

On leaving the annealing furnace, each pipe is checked for its hardness and passes on to be fettled throughout its length internally and externally, with special tools for this purpose. The pipes are weighed classified, and submitted to the appropriate hydraulic test before entering the re-heating chamber and subsequent coating and stencilling.

On the sand spun pipe, the spigot bead can be cast integral with the pipe, but with the metal spun pipe this is not possible, due to the use of a steel mould; wrought iron spot-welded beads are shrunk on when required.

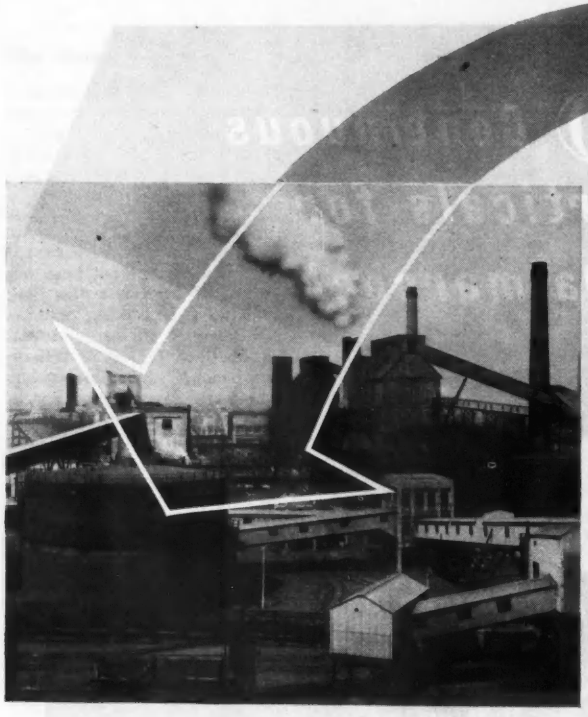
(*Concluded on p. 163.*)

W-D Continuous Verticals for Dalmarnock

The
SCOTTISH GAS BOARD
has just ordered a 7 million cu. ft.
installation for the
Dalmarnock Works in the Glasgow Division.

THE **WOODALL-DUCKHAM** VERTICAL RETORT
& OVEN CONSTRUCTION COMPANY (1920) LTD.

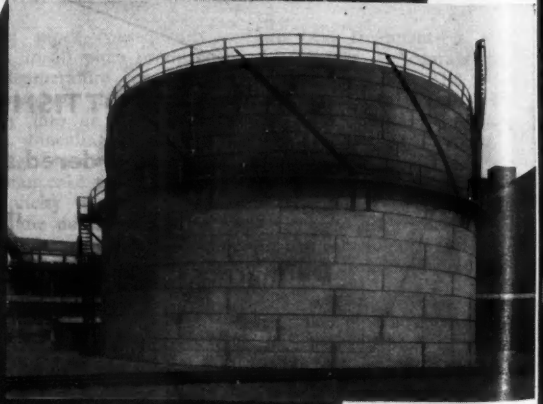
Woodall-Duckham House, 63-77 Brompton Road, London, S.W.3 Tel: KENsington 6355 (10 lines) Grams: Retortical (Southkens) London



INCONTESTABLE

THAT DEMPSTERS OF ELLAND ARE ALWAYS IN THE FOREGROUND OF PROGRESS.

Manufacturers of Gasholders (Spiral, Column-guided High Pressure and Waterless (M.A.N.) types) Purifiers (Cast iron, welded steel or Tower type) Condensing Plant and Static Washers Horizontal Carbonising Plants Mechanical Handling Plant for Coal, Coke and Oxide.



DEMPSTER · ELLAND

ROBERT DEMPSTER & SONS LTD.

ELLAND, YORKSHIRE

LONDON OFFICE: TUFTON STREET, WESTMINSTER, S.W.1

B.W.

The greatest care is exercised during production, coupled with rigid inspection and test, and it is rare that a faulty casting could be despatched. It is only fair, therefore, for the producers to request that clients co-operate by giving the necessary care in handling when the pipes arrive at their destination.

Rail wagon loads should be carefully inspected on arrival at destination before and during unloading; any breakages should be immediately reported and signed for as such, as it is then possible for damaged castings to be returned 'carriage free—broken in transit.' Replacements can then be made free of charge.

Tapping a vertically cast pipe with a hammer usually detects any crack caused in transit, but this procedure is not successful with spun pipes. Precautions should be taken in discharge from wagons, loading on to lorries, securing the load against uneven road surfaces during cartage, and discharging the lorry on site.

The testing of short lengths during laying and before filling-in, is certainly recommended. To depart from this procedure until the whole main is laid and backfilled is extremely unwise. Testing as laying proceeds not only proves the pipes laid, sound or otherwise, but is a check of the efficiency of the joints, and, at high pressure, is a test to prove the soundness in construction of any anchorages provided to take thrust at bends and dead ends.

With an obviously damaged pipe, a portion of the pipe can be saved by cutting off the affected piece. The remainder can be tested for soundness if placed as the last piece in the line. Completely damaged pipes should be broken up or taken away from the site.

PROBLEMS OF SCOTTISH JUNIORS

By R. A. CURRIE, A.R.T.C., A.M.I.Mech.E., Glasgow

Extract from a Presidential Address to the Scottish Junior Gas Association (Western District)

THE continued existence and the part to be played by the junior associations in the education of gas personnel are at the moment occupying the attention of educationalists and various committees within the industry. The value of good junior associations is fully realised, but differences of opinion have been expressed as to how these organisations can best meet the needs of the greatest number. At present it is being urged by some area boards that those associations which at present incorporate an educational qualification for membership should dispense with this and open their ranks to all interested in the industry, and that the local section of the Institution of Gas Engineers should be the body responsible for the furthering of the interests of the technically qualified member. This proposal has had a very mixed reception, but there is no doubt that where an open senior organisation exists the proposal appears to be a good one and would ultimately bring all the associations under the guidance of the one Institution, which is without a doubt a most desirable objective.

In Scotland, however, the Senior Association has not seen fit to become a section of the Institution, with the result that many qualified technicians must either associate themselves with the juniors or stand outside any such organisation. Thus, in order to allow the maximum numbers to participate in our meetings, we in this Association should remain open to receive all classes of personnel and not confine our membership to qualified technicians. The problem in this Association is not to obtain numbers but to obtain members sufficiently enthusiastic to work to bring the Association back to its former proud place in the industry.

The most pressing of our problems are to my mind as follows:—

(1) The large area over which members reside.
(2) The lack of senior support.
(3) The lack of papers written by members.
(4) Financial problems.

The problem of fixing a centre for meetings is one which the Council has considered on various occasions and no doubt the choice of Glasgow as the most central point is considered ideal. However, I feel that some attempt should be made to hold meetings at such centres as Greenock, Paisley, Hamilton, or Kilmarnock in the hope that by having meetings in these areas more interest would be created in those areas. Only one or two meetings per year should be held outside Glasgow, and then probably in mid-week at the local gasworks. Lunch or tea would probably be provided by the Gas Board and a visit to the works would be included in the day's programme. This type of meeting would interest members. It is quite common in many of the English associations, and I see no reason why it should not be a regular feature in our Scottish programme.

The loss of support from senior members is one of the principal reasons for the decline in influence of this Association. In the past we had the support of many influential seniors who were prepared not only to attend meetings and give us the benefit of their experience but to present prizes for competition among the junior personnel. In referring to the senior members I must state that we can have no complaints with the local Area Board who have provided us with speakers on various occasions and who have supported us in most of our ventures. It is a sad reflection on the seniors that many who in the not too distant past were very active juniors have lost all interest in the Association to which they owe so much.

Lack of Papers by Members

The fact that so few papers are presented by members of this Association has no doubt been responsible for the fall in the attendances at our meetings, and I am sure that if more papers were forthcoming from members most of our difficulties would cease. It would appear that members in their search for something original find great difficulty in finding some subject which will be of interest to members. This has probably been caused by the fact that original development has now passed into the hands of contracting firms employing specialists. This lack of papers is no new or recent development, but I feel that if the competitive interest among juniors could be revived the juniors could still produce papers of merit. With this idea in mind your Council has offered a prize of £2 2s. for the best short paper. This, however, is not sufficient; and I suggest that some prize or medal should be offered by the Scottish Gas Board for the best paper presented by any member of a Scottish Junior Association. In this way the associations would renew their old rivalry, and I am sure that group managers would endeavour to see that some member of their staffs made some attempt at obtaining this award. As papers would be adjudicated by the Board the award would also have the effect of keeping the Board in touch with the Association and with some of the brighter young men in the industry.

The problem of meeting our expenses is one which has not been apparent over the past few years, the reason being that over the last two or three years extra income has been received by a drive for outstanding subscriptions. This source of income is now more or less exhausted owing to the successful efforts of our Secretary, and the true position will be shown in this year's balance-sheet. It is also necessary to establish a much larger bank balance; owing to increased costs of functions, etc., it is necessary to obtain a larger cushion in the event of any function proving a failure.

Soon the Association will celebrate its jubilee and it is necessary that by that time a more enthusiastic spirit will be in evidence than it is at present.

Use of Butane in Small Gasworks

By W. T. COSBY, B.Sc., Ph.D., A.M.Inst.F.,
W. C. Holmes & Co., Ltd.

Paper presented to the Irish Gas Association, Londonderry, September 16, 1952

THE rapidly increasing capacity of British oil refineries for the processing of crude oil has recently stimulated considerable interest in the potentialities of using liquefied petroleum gases within the gas industry. While it is inconceivable that these products could prove an economic alternative to normal methods of gas manufacture for base loads at large works, there appears to be considerable scope for L.P. gases in connection with auxiliary plant for peak loads and for the enrichment of such fuels as blue water gas and producer gas.

It is well known that there exist today many small works where the production of the normal types of gaseous fuels has long ceased to be an economic proposition, and whose inclusion within a grid scheme is impracticable. In such circumstances the entire replacement of the normal manufacturing plants by L.P. gas installations presents an attractive alternative, and it is with this type of conversion that this paper is primarily concerned.

It is intended to describe the various types of plant which are required to produce butane/air mixtures, and to discuss some of the technical problems arising from the properties of L.P. gases. It is not proposed to enter into a detailed analysis of the economics of this type of gas production, since these must necessarily vary from one works to another. The manufacturing cost per therm is a function of the geographical relationship between the works, and the nearest oil refinery, the price of L.P. gases ex-refinery, the capital outlay, depreciation of plant, maintenance, and labour costs.

Owing to the non-corrosive nature of L.P. gases, the rate of plant depreciation and maintenance costs are low. Since labour costs may be based on one operative for the whole works, the price of L.P. gases is by far the major item for consideration, being at present approximately 13d. per therm for commercial butane ex-refinery. It is likely that the cost of gas made and delivered will fall in the range 18-24d. per therm, and will compare favourably with the manufacturing costs at many country works.

The comparison of L.P. gas installations and normal gas plants on æsthetic grounds alone, while being unrelated to the economics of gas manufacture, is nevertheless a significant factor of increasing importance in picturesque villages and towns.

Physical Properties of L.P. Gases

Liquefied petroleum gases are derived from the refinery processing of crude oil, the yield being of the order of one ton per 100 tons of crude oil. The major constituents are propane and butane, although small percentages of other hydrocarbon compounds, such as propylene and butylene, are usually present. Commercial butane often contains some 12% of propane and is the product largely available at present for the gas industry.

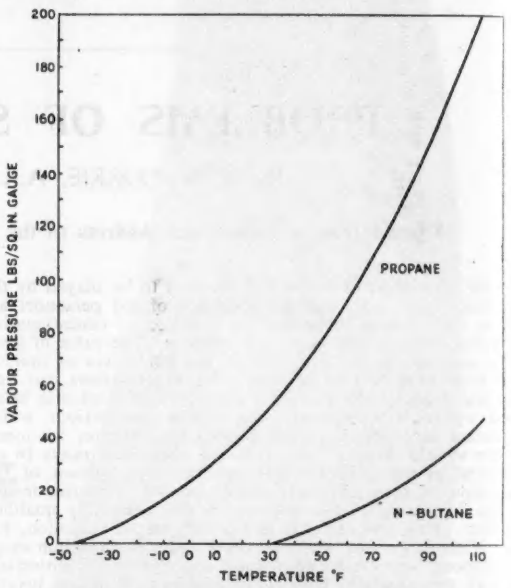


Fig. 1.—Graph showing the pressure exerted by butane and propane at various temperatures.

Propane or butane may easily be liquefied at normal temperatures and reasonable pressures and are normally transported or stored in this phase, using steel tanks. The vapour pressure exerted within the tanks is a strict function of the temperature and the composition of the product. Although pure propane and butane exert the pressure indicated in Fig. 1 at various temperatures, the terms 'commercial propane and 'butane' are somewhat arbitrary and it is prudent to allow for commercial butane possessing a vapour pressure of 100 lb. per sq. in. at 100° F. when designing plant.

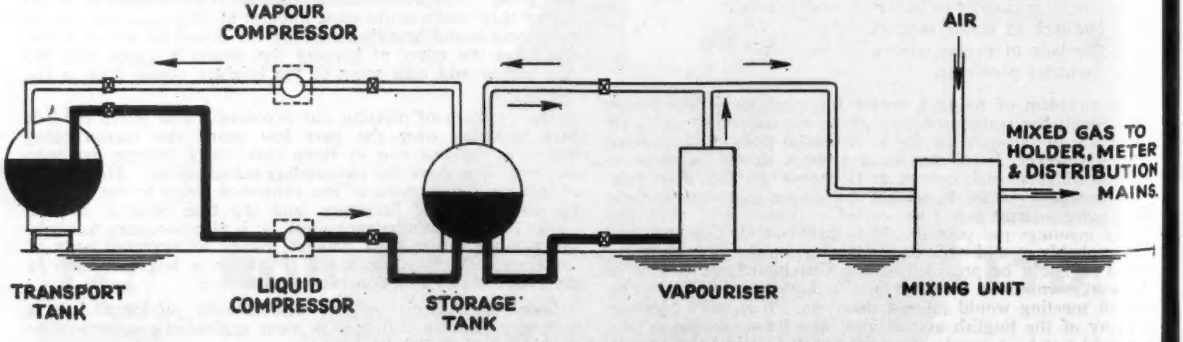
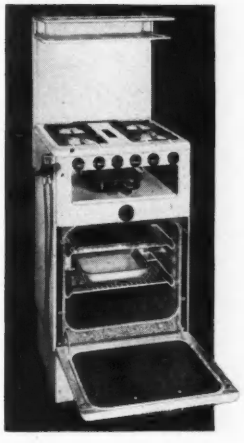


Fig. 2.—Typical arrangement of a butane/air installation.

for

NEWS OF THE CENTURY

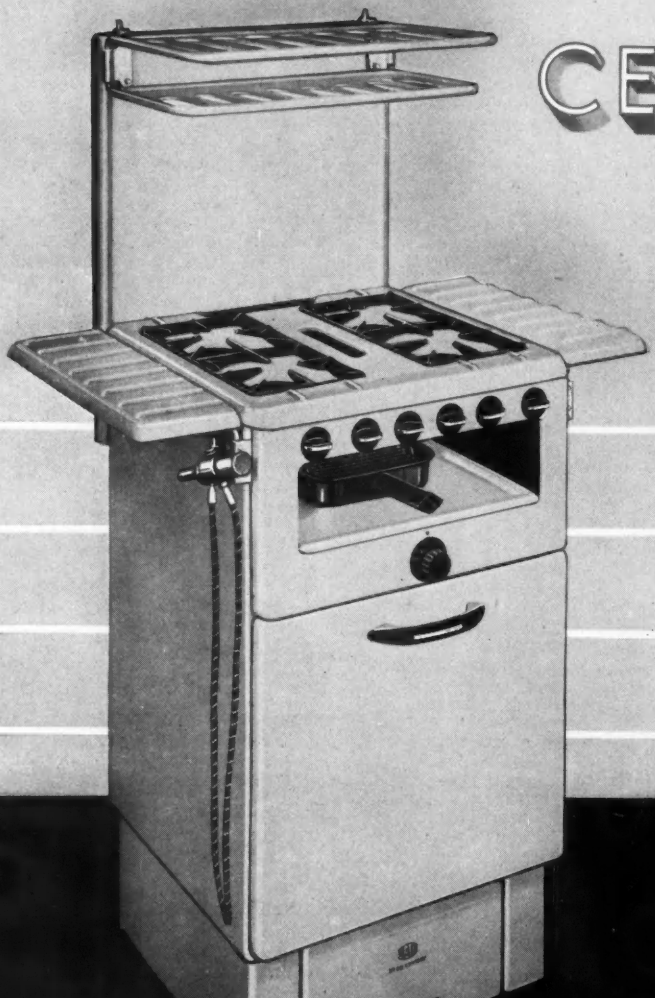


SEE OVERLEAF

Introducing...

The MAIN 20 CENTURY

Gas Cooker



advanced design

elegant appearance

improved performance

full particulars
and literature from

R. & A. MAIN LIMITED
LONDON and FALKIRK

In view of their low boiling points (−44°F. and 32°F., respectively), propane and butane rapidly change to the vapour phase should the storage tank be vented to atmospheric pressure, and provided the liquid temperatures remain above the respective boiling points continuous vaporisation will occur. Further data concerning the physical and chemical properties of propane and butane are shown in Table 1, to which reference will be made as occasion demands.

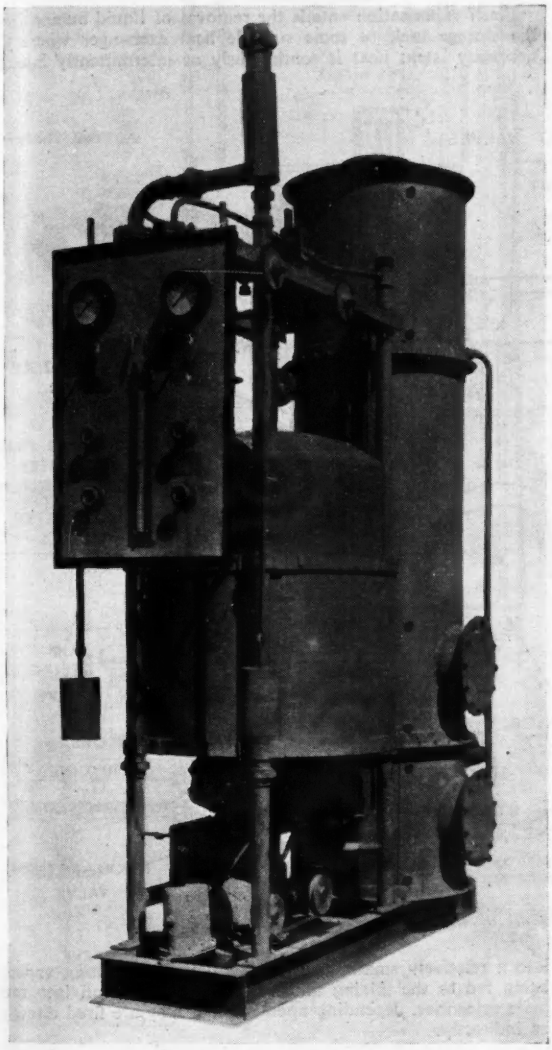


Fig. 3.—Holmes-Mallet Mixing Unit.

Butane Air Mixtures

Owing to the high calorific value of butane (about 3,200 B.Th.U. per cu.ft. or 21,300 B.Th.U. per lb.), the distribution of undiluted vapour is normally effected only through new mains, and where it is desirable to use existing distribution networks, with their inevitable leaks, butane vapour is diluted by air. Reference to Table 1 indicates that provided the proportion of vapour in the mixed gas is maintained above about 8.5% the propagation of a flame within the mixture is not possible. Since this upper inflammable limit represents a calorific value of approximately 270 B.Th.U. per cu.ft., the distribution of a mixed gas of calorific value 730 B.Th.U. per cu.ft. (23% butane vapour), ensures an adequate margin of safety. The combustion properties of such a mixture are discussed later in the paper.

TABLE 1

Physical Constant	Propane C_3H_8	N-Butane C_4H_{10}	Commercial Butane 12% C_3H_8 88% C_4H_{10}
S.G. of vapour (Air = 1)	1.521	2.004	1.942
S.G. of liquid at 60° F.	0.508	0.584	0.575
Gross heat of comb. B.Th.U. per lb. liquid	21,690	21,340	21,390
B.Th.U. per cu. ft. vap. at 60° F.	2,465	3,200	3,116
Approx. inflammable limits, % vap. in air—			
Upper limit	9.5	8.5	8.5
Lower limit	2.4	1.9	1.9
Latent heat of vaporisation at B.P. and atm. press. B.Th.U. per lb.	183	166	168
Cu. ft. of air to burn 1 cu. ft. vap. at 60° F.	23.87	31.03	30.16
Percentage CO_2 in dry combustion products	13.7	14	13.95
Boiling point of liquid at atm. press. ° F.	—44	31	31
Cu. ft. vapour at 60° F. and atm. press. formed from 1 lb. liquid	8.62	6.54	6.82

Butane/Air Installations

Fundamentally, the production of a butane/air mixture entails two purely physical processes—the conversion of liquid butane into the vapour phase and secondly the dilution of this vapour by that volume of air calculated to produce a mixed gas of given calorific value. Although these two processes may be carried out in various ways, the plant arrangement shown in Fig. 2 is essentially common to all installations.

The liquid butane is received from the refinery in road or rail tankers, of 5-20 tons capacity, and is thence transferred to static storage vessels. This transfer is normally effected by the insertion of a vapour pump in a pipe connecting the vapour spaces in the discharging and receiving tanks respectively. A pressure differential is established in favour of the liquid butane being driven, via a liquid connecting line, into the storage tank. Alternatively, a liquid pump may be used in the liquid connection, the vapour line acting as a pressure equalising device. The motive power for the liquid transfer operation may also be provided by either heating the discharging vessel or cooling the receiving tank, but this method involves inherent practical difficulties.

The use of small tanks is desirable only in the absence of more suitable vessels of larger capacity. Such tanks, however, may be used for both transport and storage purposes.

Any tank containing butane is essentially a pressure vessel, and is designed accordingly. Provision is made for the transfer of liquid and vapour to and from the tank, the measurement of liquid level, and for the discharge of sufficient vapour, through adequate safety relief valves, to inhibit the development of excessive pressures due to atmospheric temperatures or the envelopment of the tank by flames from any possible conflagration.

Liquid butane, in common with other L.P. gases, has a high coefficient of thermal expansion, and as a result the permissible filling ratio of any storage tank at a particular temperature is strictly defined, being a function of the specific gravity and temperature of the liquid at the time of filling. The maximum proportion of the total volume of the vessel which may be occupied by liquid butane at 40°F. is, for example, approximately 80%, this value increasing with temperature and the specific gravity of the product at a given temperature.

Vaporisation of Liquid Butane

The first stage in the production of a butane/air mixture entails the continuous conversion of liquid butane to the vapour phase at a rate proportional to the output of the complete plant. Thus, for an installation designed to yield 6,000 cu.ft. of mixed gas per hour, having a calorific value of 730 B.Th.U. per cu.ft., some 1,350 cu.ft. of butane vapour is required per

hour. The latent heat of vaporisation of commercial butane is approximately 168 B.Th.U. per lb. of liquid, and to produce 1,350 cu.ft. of vapour (representing just over 200 lb. of liquid), some 34,000 B.Th.U. must be supplied.

The methods by which the latent heat may be acquired by the liquid butane fall into two main categories, designated batch or flash vaporisation respectively.

In the case of batch vaporisation, vapour is withdrawn from the storage tanks themselves and piped directly to the mixing unit, the latent heat required for the process being furnished by the atmosphere through the walls of the tanks. The heat transfer coefficient from the ambient air to the boiling off first resulting in an increasing percentage of the higher boiling point fractions being present when the tank is nearly exhausted. Increased difficulty is therefore experienced in completely draining the storage vessels in cold weather and recourse must sometimes be made to flash vaporisation.

In practice, however, it has been proved that batch vaporisaton may be used successfully with certain types of mixing unit over long periods of the year, particularly during the summer months, resulting in a significant saving of fuel.

Flash vaporisation entails the removal of liquid butane from the storage tank to some suitable heat exchanger where the necessary latent heat is continuously or intermittently injected

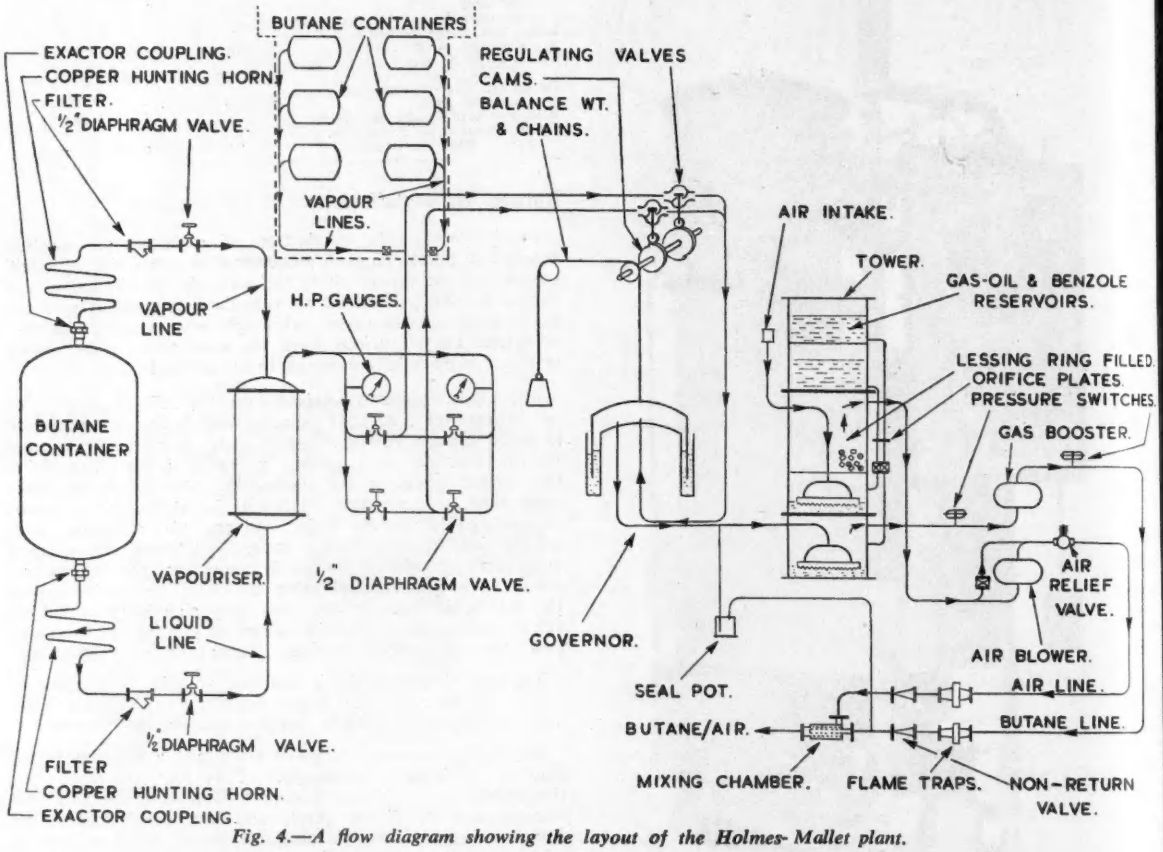


Fig. 4.—A flow diagram showing the layout of the Holmes-Mallet plant.

liquid butane under such conditions is usually of the order of 2-4 B.Th.U. per sq. ft. per hour per °F. Thus, three full tanks of 1 ton capacity present a surface area of approximately 360 sq. ft., and assuming a coefficient of heat transfer of 3 B.Th.U. per sq. ft. per hour per °F., a temperature differential between the air and liquid of some 32°F. is required to vaporise about 200 lb. of liquid per hour. Since a vapour pressure in excess of atmospheric pressure is exerted even when the liquid butane temperature approaches 32°F., an ambient air temperature of about 64°F. will suffice to ensure satisfactory evaporation, while if a percentage of propane be present, a still lower air temperature will suffice.

The success of this method of vaporisation is dependent upon the hourly demand for vapour, the effective surface area presented by the storage vessels (determined by the number of tanks connected up and the levels of the liquid contained therein), the ambient air temperature, and the composition of the commercial butane used.

When using batch vaporisation there is a tendency for selective evaporation to occur, the more volatile constituents into a relatively small volume of liquid, the resulting vapour being fed to the mixing unit. Flash vaporisers fall into two main categories, depending upon whether they are fired directly or indirectly.

In the direct method of firing, the products of combustion of butane vapour are allowed to transfer their sensible heat through the walls of a suitable metal housing to the liquid butane contained therein. Very often, the housing comprises the annulus between two concentric tubes, the inner tube acting as a flue for the butane burners. Such vaporisers are frequently overrated in relation to the vapour requirements of the mixing unit, and the excess pressures developed are transmitted to the storage tank to ensure an adequate supply of liquid to the heat exchanger.

Unlike direct fired vaporisers, indirect fired units utilise some intermediate heat transmitting medium, such as water or steam, which circulates through metal coils immersed in the liquid butane. The medium may be heated by electricity, steam, or the combustion products of butane vapour at a point remote from the actual heat exchanger, and, as in the

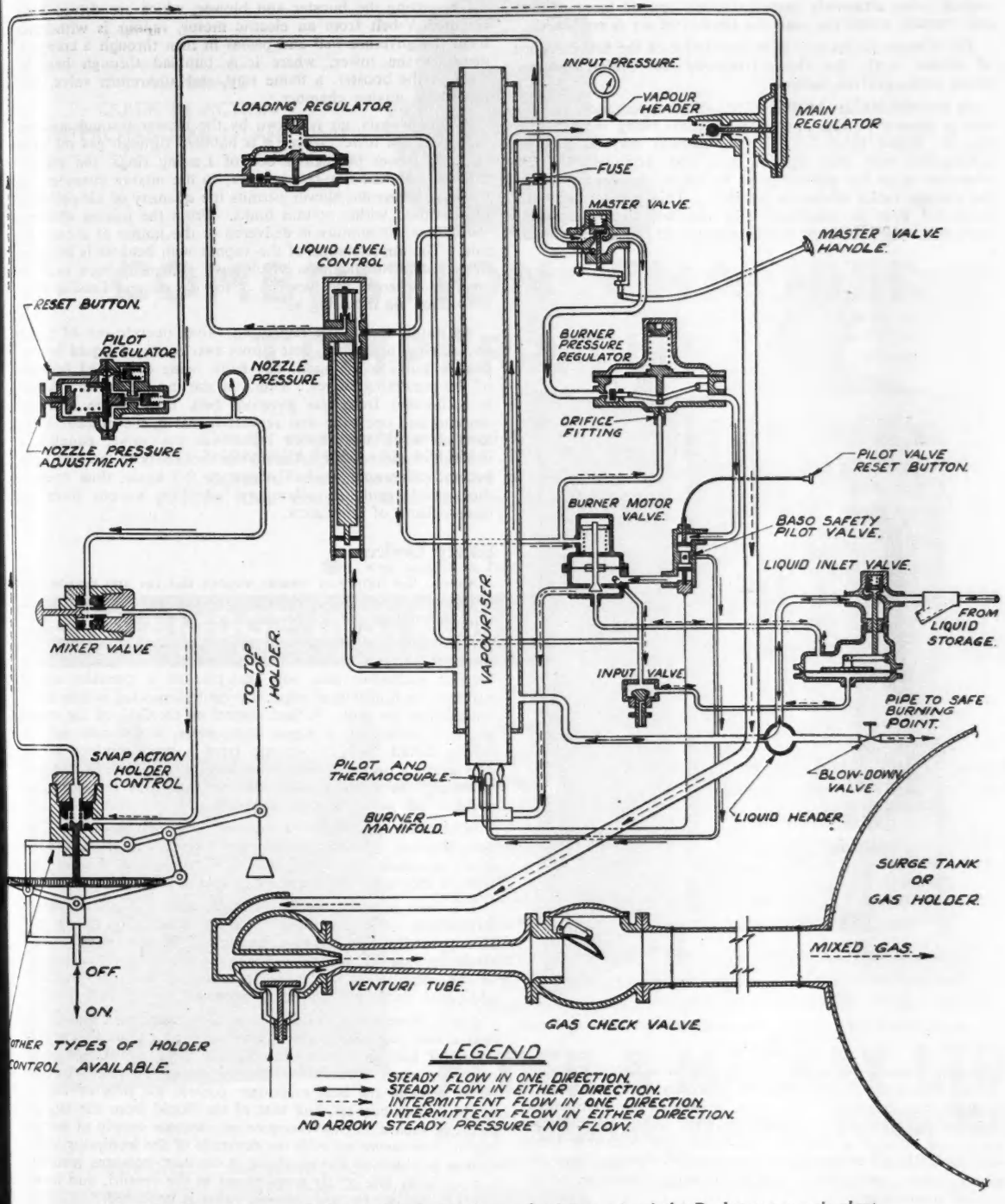


Fig. 5.—Flow diagram of the combined vaporiser and mixing unit of the Draketown gas air plant.

case of direct fired units, adequate precautions are taken to prevent the development of excessive pressure or the carry-over of liquid butane to the mixing unit.

Where butane vapour is used to provide the latent heat of vaporisation, either directly or indirectly, the quantity used represents about 1%-3% of that appearng in the mixed gas, depending upon the efficiency of the heat exchange system.

Having secured an adequate supply of butane vapour, the latter is then diluted by air to produce a mixture of the desired calorific value, using one of several different types of mixing unit. There are two basic designs, the first of which employs a prime mover such as an electrically driven booster and blower which are fed with butane vapour and air at approximately atmospheric pressure, and which discharge into a common main where the actual mixing occurs. In the second type of unit, the motive power is derived solely from the pressure developed within the storage tanks at atmospheric temperature, butane

vapour being ultimately passed through one or more orifices and venturis where the requisite amount of air is entrained.

The Holmes-Mallet unit is representative of the first category of mixers, while the Drake-Townsend and Cutler Hammer plants exemplify the second.

(a) *Holmes-Mallet Mixing Unit.*—The appearance of this unit is shown in Fig. 3, a flow diagram being indicated in Fig. 4. Either batch or flash vaporisation may be used in conjunction with this type of unit, and arrangements are normally made for advantage to be taken of vaporisation at the storage tanks whenever possible. This process may be successful even in relatively cold weather, since the liquid need only exert sufficient vapour pressure to propel the vapour

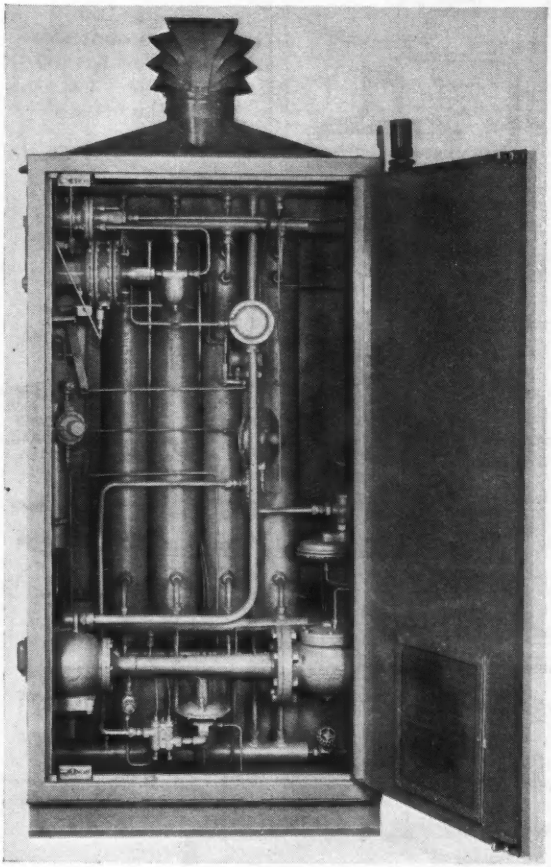


Fig. 6.—General view of the Draketown gas/air vaporiser and mixing unit.

along the pipes to the unit. In the event of unfavourable conditions obtaining at any time, an indirectly fired vaporiser is brought into operation. Hot water is used as the intermediate fluid, being supplied by a neat butane fired water heater, and is circulated through a steel coil immersed in a relatively small volume of liquid butane. The latter is fed directly from the storage tanks, using the pressure obtaining therein at atmospheric temperature.

During operation, butane vapour at high pressure passes through the control valves into a water sealed governor at a pressure of about 3 in. W.G. via regulating valves. (See Fig. 4.) The latter are operated by two cams which in turn are rotated by the rise and fall of the governor bell. Thus, as the bell is filled with butane vapour, it rises and closes first one and then the other of the regulating valves, thereby sealing the high pressure line from either the storage tanks or the vaporiser, depending upon which mode of vaporisation is being employed.

On starting the booster and blower, which are driven by a common V-belt from an electric motor, vapour is withdrawn from the governor bell and passes in turn through a compartment in the tower, where it is bubbled through benzole, through the booster, a flame trap, and non-return valve, into the actual mixing chamber.

Simultaneously, air is drawn by the blower through another section of the tower, where it is bubbled through gas oil. The air then passes through a bed of Lessing rings, the blower, a flame trap and non-return valve, to the mixing chamber. A by-pass across the blower permits the quantity of air delivered to be varied within certain limits. From the mixing chamber the butane/air mixture is delivered to the holder at a constant rate. The impregnation of the vapour with benzole is intended to protect meter leathers, which have previously been used on coal gas, whereas the function of the gas oil and Lessing rings is to filter the incoming air.

As stated above, the regulating valves operate out of phase and this feature of the unit allows two banks of liquid butane storage tanks to be used, one bank being connected to each of the regulating valves. Thus, on starting the motor, vapour is withdrawn from the governor bell, causing the latter to descend and open the first regulating valve, the descent being arrested when the vapour input, via the valve, equals the demand of the booster. Should the containers in the first bank become exhausted, the bell begins to fall again, thus opening the second regulating valves and admitting vapour from the reserve bank of containers.

Safety Devices

Should the supply of butane vapour fail for any reason, the governor bell descends completely and operates a cut-off switch, thus immobilising the plant and sounding an alarm.

Although it is possible to deliver a constant vapour/air mixture against a considerable back pressure, should the latter become excessive, due, for example, to a partially closed valve in the holder inlet main, a pressure-operated switch again immobilises the unit. A final control on the C.V. of the mixed gas is provided by a Sigma calorimeter, which cuts out the motor should the C.V. deviate from a predetermined range. The plant is normally controlled from two manually operated switches, but provision may also be made for the holder to perform the same function automatically.

(b) *Draketown Gasair Vaporiser and Mixing Unit.*—The flow diagram relating to this plant, which comprises a combined vaporiser and mixing unit, is shown in Fig. 5, a general view of the equipment being illustrated in Fig. 6.

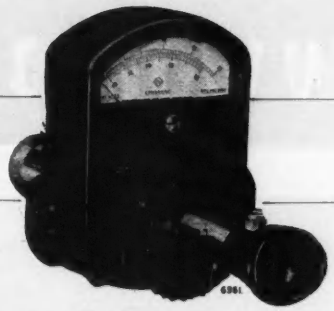
This unit operates on the principle that if a gas be passed through an orifice and then a venturi, a quantity of air may be entrained, which will be a function of the gas velocity. The actual mixing of butane vapour and air is thus performed at the expense of the initial pressure of the gas only, no additional prime movers being necessary.

Liquid butane is withdrawn from the storage tank and passes into a heat exchanger which may be fired either directly, by means of butane vapour, or indirectly using steam, hot water or other such medium. Various valves operated by the liquid level in the heat exchanger control the flow of vapour to the butane burners, and that of the liquid from the storage tanks, in such a way as to ensure an adequate supply of butane vapour commensurate with the demands of the inspirator. The vapour is piped to the nozzle at a constant pressure resulting in a uniform rate of air entrainment at the venturi, and hence a mixed gas of constant calorific value is produced.

It is essential that the velocity through the nozzle be maintained at a fixed value since the entrainment of air is not a linear function of the gas velocity, and a variation in the latter would produce an increased or decreased calorific value in the final mixture. The unit is, therefore, either making to capacity or completely off, variations in demand, when a holder is not used, being covered by the use of a surge tank which switches the mixing unit on or off intermittently. Control of the final

(*Continued on page 172*)

ACCURATE
QUICK IN ACTION
INTERCHANGEABLE LAMP UNIT



PORTABLE
SIMPLE TO USE
SELF-CONTAINED

COMBUSTION CHAMBER TEMPERATURES

Can be conveniently and rapidly measured by the CAMBRIDGE DISAPPEARING FILAMENT PYROMETER. It is supplied as standard equipment by some of the largest retort constructors in this country and is used by hundreds of gas engineers.

● **You would be interested in LIST 990-D** ●

CAMBRIDGE INSTRUMENT COMPANY LIMITED
13 GROSVENOR PLACE LONDON SW1

THE NEW A&M OPTIONAL METER

We confidently present our latest coin meter available for pennies and shillings, sixpences and shillings, or half-crowns and shillings and readily adjustable for single coin operation at the gas engineer's option.

The mechanism embodies the fruits of many years' research, every part is precision made to close limits, range-plates are interchangeable - absolutely - one meter with another.

ALDER & MACKAY LTD
NEW GRANGE WORKS, EDINBURGH

Also at
BRADFORD · MANCHESTER · LONDON · BELFAST · NEWCASTLE-ON-TYNE · CORK

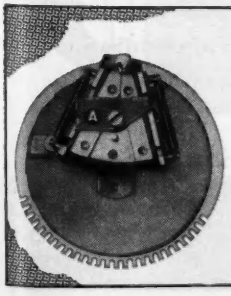


Fig. 1, on left, shows the back of the range-plate adjusted for optional coin. The swinging plate 'A' defies any attempt to insert a coin when one is already in the other slot.

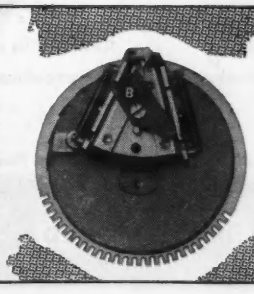


Fig 2, on left, shows the plate positioned to admit sixpences only. To make this adjustment, loosen screw 'B' and tighten it again with the plate in the new position.

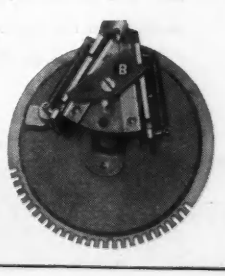
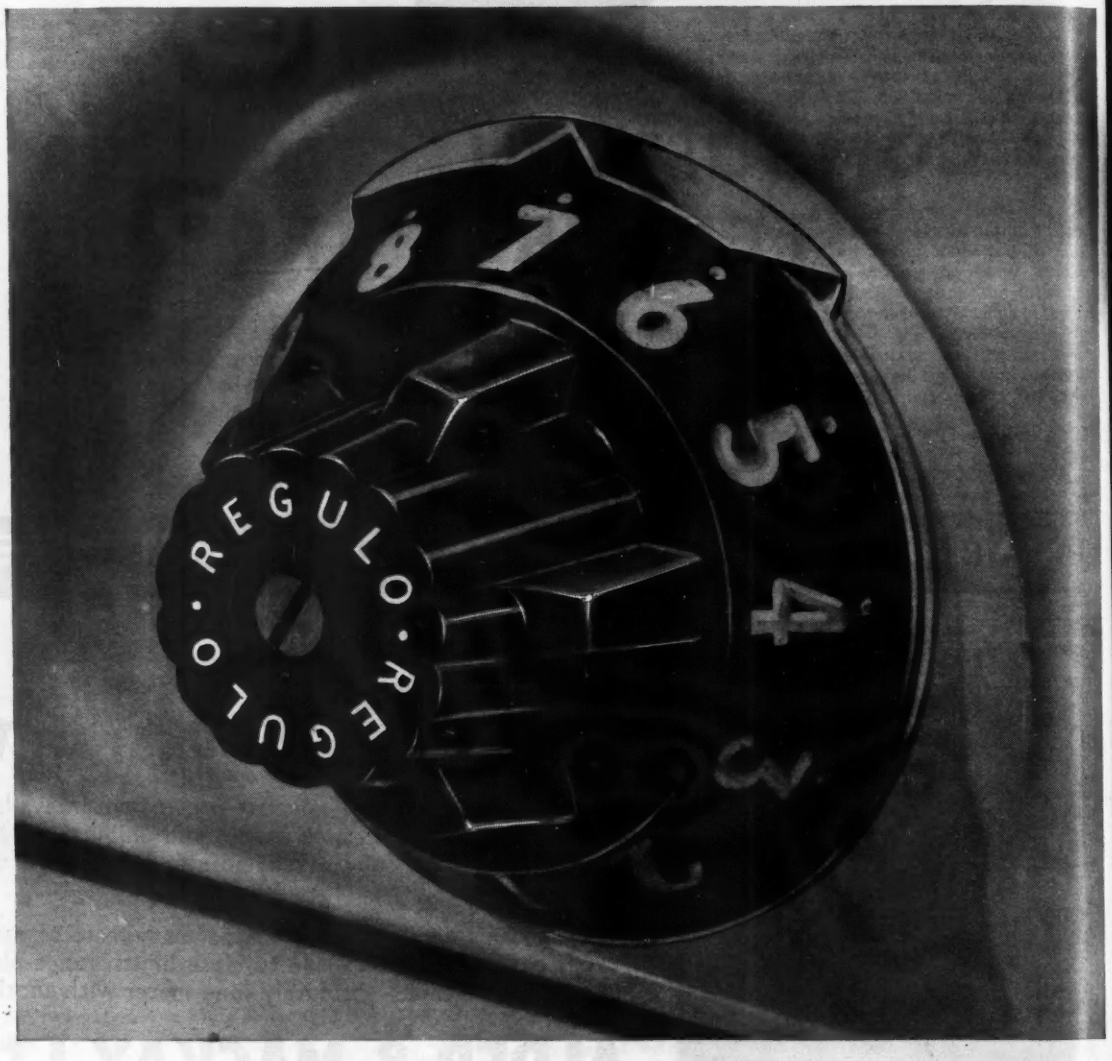


Fig. 3, on left, shows the plate positioned for shillings only. To make this adjustment, remove screw 'B', reverse the plate as shown and replace the screw.

Only NEW WORLD gas appl



The introduction of the REGULO on the first NEW WORLD cooker in 1923 opened a new era by removing all the guesswork from cooking in the oven.

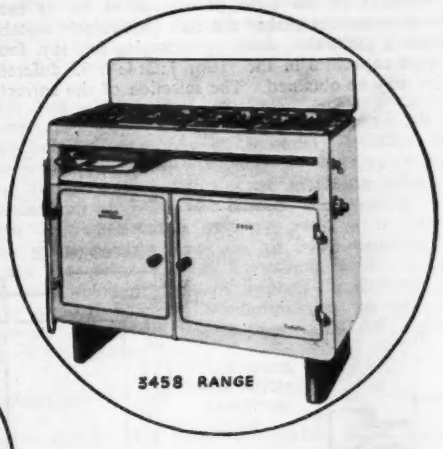
In recent years its use has been extended to provide NEW WORLD storage water heaters with a completely reliable automatic heat control.

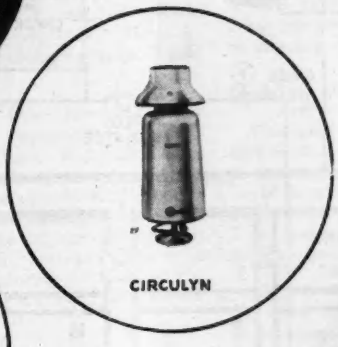
To-day, there are well over two million REGULO in constant use — a fitting tribute to the excellence of this ingenious device.

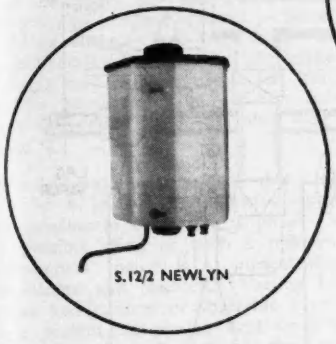
Radiation Group Sales Ltd., Head Office and Showrooms:—7, Stratford Place, London, W.1 Tel. MAYfair 6462

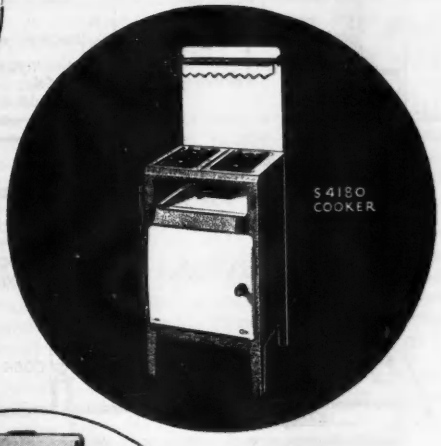
NEW WORLD NEW WORLD NEW WORLD

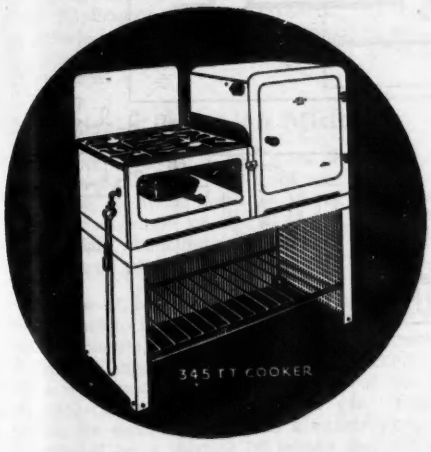
nces have REGULO control











NEW WORLD NEW WORLD NEW WORLD

C.V. of the mixed gas may be effected by means of calorimeters if so desired, though adequate precautions are taken to prevent delivery of a mixture falling within the inflammable range.

(c) *Cutler-Hammer Mixing Unit.*—The flow diagram (Fig. 7) indicates that the injector principle is also used in this unit. A number of individual injectors may be used, vapour being supplied at constant pressure to the nozzles resulting in the entrainment of the same percentage of air at each venturi. This arrangement makes the unit particularly suitable for use without a gasholder, since, by arranging for, say, four injectors to have capacities in the ratios 1:2:4:8, 15 different rates of make may be obtained. The selection of the correct combination of injectors to meet a given demand is automatically effected by means of a snap action selector operated by the pressure in the mixed gas mains.

Provision is also made to ensure that the pressure differential across the mixed gas main and the air intake manifold remains constant in spite of possible variations in the discharge conditions. Thus an increase or decrease in the back pressure, against which the unit must discharge, does not alter the butane/air ratio in the mixed gas, a phenomenon which otherwise must occur.

Automatic control of the calorific value of the mixed gas is also possible by means of suitable calorimeters, but the plant

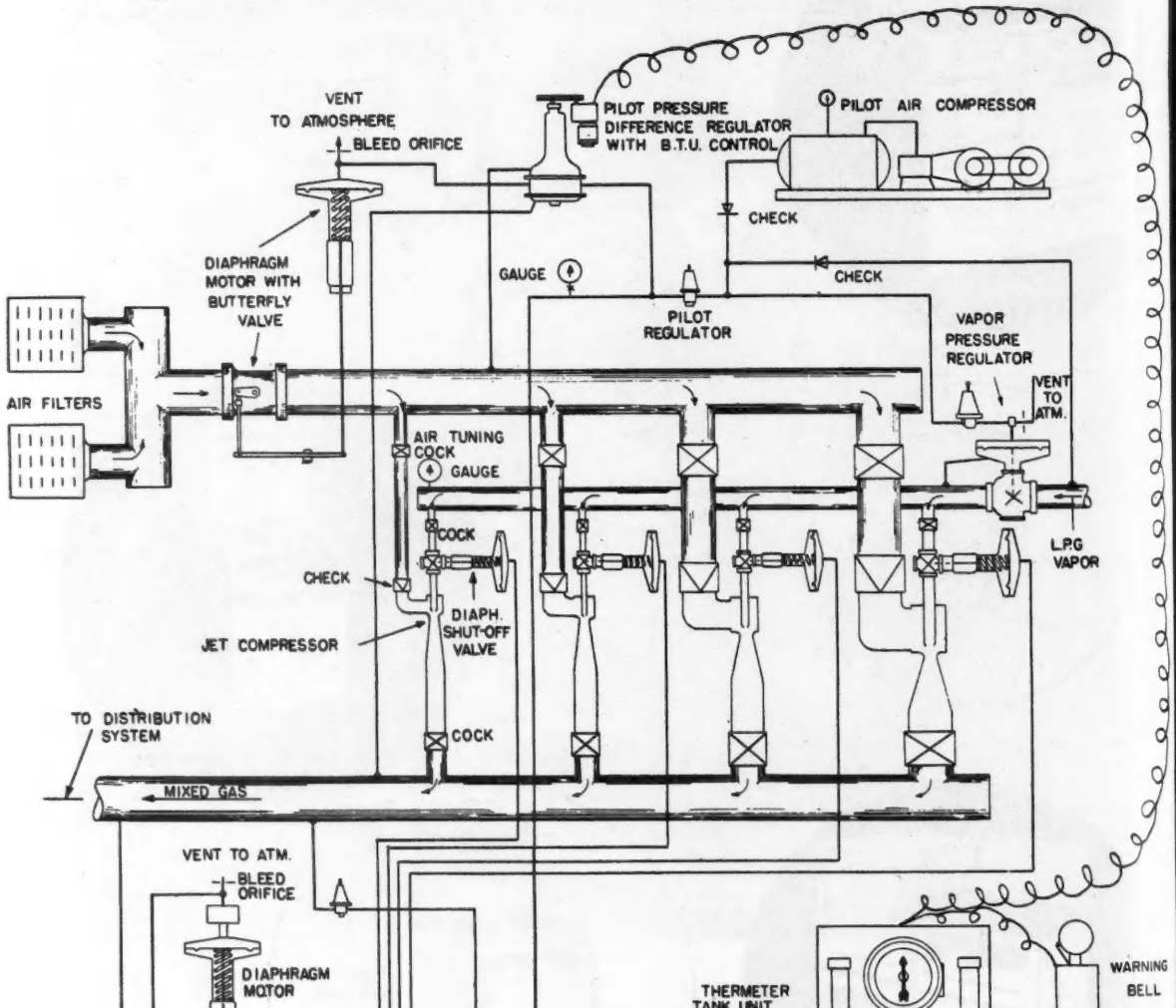


Fig. 7.—Flow diagram showing the Cutler-Hammer mixing unit and indicating the injector principle used.

may still be used should a failure in the electricity supply render the control mechanism inoperative.

As an alternative to the use of two separate positive blowers, a single compressor may be used to effect the mixing of butane vapour and air in the desired proportion. The vapour and air are presented to the compressor at strictly constant pressures, the calorific value of the resulting mixture remaining constant over a wide range of compressor outputs.

Yet another device entails the separate passage of vapour and air through two positive displacement type meters. The relative rotation of one meter with respect to the other is automatically controlled to ensure the correct percentage of vapour and air when the two streams are mixed.

Distribution of Butane/Air Mixtures

The mixed gas leaving the plant may be passed either into a holder for storage or directly into the distribution network via the station meter.

Having been diluted by air, the dewpoint of the butane is lowered, being, for example, about −32°F. at atmospheric pressure for a mixture of 730 B.Th.U. per cu.ft. There is, therefore, little possibility of the vapour changing to the liquid phase either in the holder or the mains.

The risk of water condensing out from the mixed gas in underground mains is, however, appreciable in areas where the atmospheric humidity is high, such conditions being favourable to rapid corrosion on account of the high oxygen content present. Since commercial butane should be virtually free from water, the addition of a suitable dehydration unit to the air intake of the mixing unit serves as an adequate precaution, and where a holder is used the provision of an oil film reduces the possibilities of the dehydrated mixed gas absorbing water vapour during storage.

The butane/air mixture is distributed at a pressure of 3 in. to 4 in. W.G. and has a specific gravity of 1.23, corresponding to a calorific value of 730 B.Th.U. per cu. ft. The possible effect of such a mixture on the diaphragms in consumers' meters is at present the subject of considerable interest and research. Various types of synthetic diaphragm and mineral or vegetable based diaphragm dressings are at present undergoing field trials to establish the most satisfactory means of combating the solvent action of butane. In the United States, where L.P. gas installations have been in existence for more than 30 years, the use of synthetic meter diaphragms is widely favoured, but there is evidence that suitable dressings used in conjunction with meters fitted with new leather diaphragms might give adequate service for long periods.

Combustion of Butane/Air Mixtures

Reference to Table 1 will show that about 30 cu. ft. of air is required to burn 1 cu. ft. of neat butane, compared with some 5 cu. ft. of air for 1 cu. ft. of manufactured gas. A butane/air mixture of 500 B.Th.U. per cu. ft., however, requires only about the same quantity of air per cu. ft. as a manufactured gas of the same calorific value.

The flow of a gas per unit time through a circular orifice is proportional to the product $h^{0.5} \times d^{-0.5}$ where h and d represent the pressure drop across the orifice and the specific gravity of the gas respectively. Further, the B.Th.U. rating of an orifice is proportional to the product of the flow per unit time and the calorific value of the gas. Thus in order to provide the same heat input to a burner when coal gas is to be replaced by a mixture of butane and air, with its correspondingly higher specific gravity, a calorific value of about 730-750 B.Th.U. per cu. ft. must be used. In other words the replacement gas should have the same Wobbe Index $\left(\frac{C.V.}{\sqrt{d}}\right)$ as the original fuel.

One cubic foot of a 730 B.Th.U. per cu. ft. mixture comprises 0.23 cu. ft. of butane and 0.77 cu. ft. of air, and since about 6.9 cu. ft. of air is required per cu. ft. of mixed gas, a further 6.13 cu. ft. must be entrained for theoretical combustion. The air required for combustion may either be entrained by the neat gas prior to the actual ignition zone (primary aeration) or allowed to diffuse into the flame itself from the atmosphere (secondary aeration). Certain designs of gas burner rely completely on either primary or secondary aeration, whereas others operate using a combination of the two.

Many gas appliances, such as radiant and convector space heaters and water heaters, embody diffusion flame type burners relying exclusively on secondary aeration, but such a course is unsatisfactory when using butane/air mixtures owing to the greater difficulty of obtaining adequate air entrainment and mixing. The burners employed in converting such appliances allow primary aeration to occur, little or no reliance being place on air being supplied by diffusion into the flame. Such flames exhibit no yellow luminosity, and where the latter property is required, as in the case of flames used for illumination purposes, a large percentage of the air for combustion is still applied in advance of the ignition zone.

Ignition Velocity

The ignition velocity of a butane/air mixture is only about half that of coal gas and adequate precautions must be taken to ensure that the velocity of the theoretical mixture at burner ports is not of sufficient magnitude to cause lifting of the flame. In the conversion of the cast-iron burners fitted to many gas stoves, for instance, the number of ports is doubled for this reason.

Since the conversion of those appliances which use individual diffusion flame type of burners merely entails their direct replacement by the correspondingly rated butane/air jets, and the majority of cast-iron burners may conveniently be drilled to suit the new gas, the change-over from the use of manufactured gas presents no major difficulty in this direction.

Where new gas stoves are required they may be obtained already designed to burn butane/air mixtures, the burners being generally fitted with narrow slots since this arrangement tends to produce a more stable flame than that comprising a large number of circular ports.

Finally, mention may be made of the fact that L.P. gases are virtually free from sulphur, a most favourable characteristic from the combustion point of view.

An attempt has been made to discuss some of the aspects relating to the use of butane as an alternative fuel for distribution from smaller gasworks. The success of the first such installation in Wales augurs well for the future development of similar projects elsewhere, and, in fact, several other works in this and other parts of the country are scheduled for conversion in the near future.

IRISH COAL MINE FOR SALE

TENDERS for the purchase as a going concern of the Company's colliery at Ballingarry, Slieveardagh, County Tipperary, with all buildings and plant, on a lease for 99 years from August, 1941, have been invited by Mianrai Teuranta. Ballingarry Colliery is a working portion of the coalfield covering 260 acres estimated to contain 520,000 tons of anthracite.

The Minister for Industry and Commerce has had the question of the future operation by the Company at Slieveardagh under consideration. He considered that it would now be opportune to try to get private enterprise to take over the workings of the colliery and the further development of the coalfields. For that reason he has instructed the Company to offer the property for sale.

SCRAP GAS METERS WANTED

Top prices paid—Collection arranged from anywhere in U.K.

Sell to those best suited to deal with them.

Sell to — MITCHAM SMELTERS LIMITED
Rometal Works, Red House Road,
Mitcham Road . . . CROYDON . . . Surrey.
Tel: THOrnton Heath 6101. (Private Branch Exchange).

Truck Loads to our own private siding, Beddington Lane, Southern Region.

GAS RETORTS

HARRIS & PEARSON

STOURBRIDGE ENGLAND LTD

INSULATING BRICKS, RECUPERATOR TUBES, SPECIAL SEMI-SILICA QUALITY FOR SEGMENTAL RETORTS WITH NO EXPANSION OR CONTRACTION AT 1400° C

Manufacturers of
Fire Bricks, Lumps & Tiles
OF EVERY DESCRIPTION

WILKES' LOW PRESSURE GAS & AIR INJECTORS

Wilkes Gas & Air Injectors are available in a wide range for use with Gas furnaces of all types and descriptions and are especially suitable for use with enamelling stoves, furnaces, bar burners, heating tanks, etc. Let us have details of *your* particular requirements.

B.3005
Standard pattern variable gas consumption injector, has been designed to operate efficiently on all gas pressures.
The jet is adjusted by a milled cap to give any desired consumption within the specified range, and is locked in position by a locking ring. Control of the air is effected by a split milled ring on the body of the injector.

B.3007
Superior, patented variable gas consumption injector has an internal locking device so that when the desired maximum gas flow is obtained it cannot be altered or interfered with unless the outer protecting cap is removed.
Minimum restriction to the gas flow is achieved with this new and novel design, and in this case the gas connection is at right angles to the outlet.

B.3005. B.3007.

The Alcosa Range includes:—

AIR GAS MIXERS FOR WIDE RANGE OF HEAT TREATMENT PLANTS, GAS BURNERS, GAS FIRED FURNACES FOR FORGING, HARDENING, ANNEALING, WELDING AND MELTING. HIGH SPEED BRAZING APPARATUS, SOLDERING AND BRAZING EQUIPMENT. TINNING BATHS. ALSO THE NEW WILKES B.2106S.L. BLOWPIPE.

Write for lists and full details

A.H.WILKES & CO.

A SUBSIDIARY OF WILLIAM ALLDAY & CO., LTD.

THE MOST DEPENDABLE NAME IN GAS APPLIANCES

ALCOSA WORKS · STOURPORT-ON-SEVERN · WORCESTERSHIRE · TELEPHONE: STOURPORT 311-4 · TELEGRAMS: YADALL STOURPORT
LONDON OFFICE & WORKS: CRESSWELL WORKS · SOUTH NORWOOD · S.E.25 · TELEPHONE: ADDISCOMBE 1162

M & PATENT M
METER LOCKS

e the STRONGEST, SAFEST METER LOCK

- DON'T buy locks you may have to scrap in a few years
- DON'T look only at the initial cost
- DON'T think only of the present time; look to the future
- DO remember that good quality is cheapest in the long run
- DO take our word for it that our workmanship is consistently good
- DO profit by others' experience and use M. & M Locks to protect your meters

. MITCHELL & CO.
38, NEW CHARLES STREET, LONDON, E.C.1

In the chlorinated rubber paint group

EVODE

merits top specification

UTMOST PROTECTION
HIGH
COVERING CAPACITY

These widely-used paints are highly alkali and acid resisting. Strong acids and many organic acids, alkaline solutions and corrosive liquids have no detrimental effect. They are practically fire proof after drying, of highest elasticity, dust dry in thirty minutes after application and dry finally to an extremely hard and glossy surface.

Write now for Leaflet 2892, with practical information for covering iron and steel surfaces, concrete and brickwork, etc. and recommended primers. Supplied, on request to

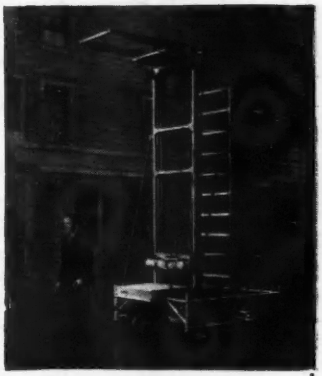
EVODE LTD., CLOVER ST., STAFFORD
Telephone: 1590/1/2 Telegrams: Evode, Stafford.

BRING HIGH-LEVEL MAINTENANCE COSTS DOWN WITH . . .

Gibson Towers

Looking after fittings in high inaccessible places can be a costly business both in labour and time. John Gibson's make a range of Tower Ladders, with hand-winch operation, designed to speed up the time taken on these jobs. All Towers are easily operated and can be electrically propelled or handled without undue fatigue. They're quality jobs, made in aluminium alloy, fitted with rubber tyred wheels, stabilising jacks and safety devices.

If you have some trouble which needs climbing up to, why not write for details of the range of Tower Ladders for outdoor or indoor use. Alternatively, let us know what your problem is and we can produce the equipment to suit.



Enquiries for illustrated leaflet or advice to :—

JOHN GIBSON & SON LTD
Jameson Place - Leith - Edinburgh 6. Telephone: 35418 (4 lines)

ENGLISH DISTRIBUTORS

Beresford Atkinson Ltd.
Hough House - Manchester 10
Telephone: Collyhurst 2991

Municipal Supplies Ltd.
2 Robert Street, Adelphi, London, W.C.2.
Tel: Trafalgar 5401

J. BROWN & CO. LTD.
SAVILE TOWN, DEWSBURY, YORKS.
Supply:–
"BROWNOX-de-LUXE" PURIFYING MATERIAL
Purchase:–
SPENT OXIDE

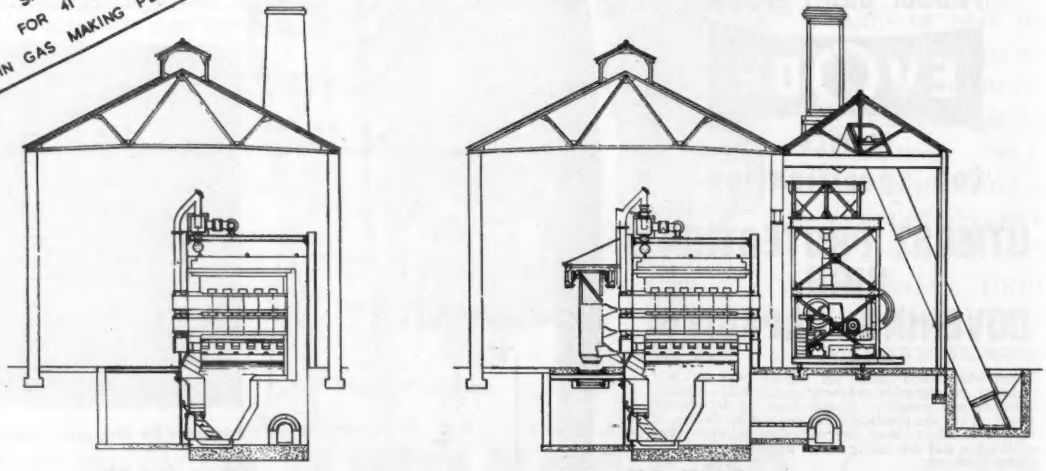
CASES FOR BINDING
Quarterly Volumes of the "Gas Journal."
5/- each, post free
Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

Welding, Gunning & Spraying of GAS RETORTS
Write for particulars of how E.B. Service can help in reducing maintenance costs.
Manufacturers of all types of Cements.
E.B. REFRACTORY CEMENT CO. LTD.
OAKFIELD OFFICES, BRETTELL LANE, STOURBRIDGE

ONX The Cements for patching hot retorts
AND ALL TYPES OF FURNACES
Super 83 Brand FIRE CEMENT
A.L.CURTIS & Co.
WESTMOOR WORKS. CHATTERIS. CAMBS.

COKE SACKS!
HEMP AND JUTE, KEENEST PRICES
H. R. WEBSTER, LTD.,
SALMON LANE WHARF,
LIMEHOUSE, LONDON, E.14.
ESTABLISHED OVER 150 YEARS.
Telephone : STEpney Green, 4458/9.

SPECIALISTS FOR 41 YEARS IN GAS MAKING PLANT
'HORIZONTALS'
CONVERSION OF STOP END BENCHES TO THROUGHS



FROM THIS —— TO THIS
SUBSTANTIAL INCREASE IN OUTPUT AT LOW COST

THE STANDARD FURNACE & SETTING COMPANY LTD.
PHONE: 2184 SOUTHPORT SOUTHPORT GRAMS: "STANDARD FURNACE, SOUTHPORT"

STUDENTS - - - - STUDENTS

Available from Stock

"A MANUAL OF GAS FITTING"

by R. N. Le FEVRE, M.Inst.Gas E., A.M.I.Mech.E.
Training and Education Officer, North Thames Gas Board

The Theory and Practice of Gas Installation Work and the Servicing of Gas Appliances and Equipment

THE GAS INDUSTRY'S BEST SELLER

PRICE 30/-

WALTER KING, LTD., 11, BOLT COURT, FLEET STREET, E.C.4

STUDENTS - - - - STUDENTS

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire :- 52/- per annum; Foreign :- 60/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone: Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.
Telephone: CENtral 2236-7. Telegrams: Gasking, Fleet, London.

The
LIMIT OF EFFICIENCY CAN BE REACHED
by the use of
LUX
GAS PURIFYING MATERIAL
Sole Importers:
HARRISONS (London) LIMITED
66, Mark Lane, LONDON, E.C.3
Telegrams: Birchrock, London Telephone: ROYal 3120

FIRE!
WHICH COLOUR
NU-SWIFT?
Red, blue or black? Distinctive colours for different fire risks prevent costly errors. Are your extinguishers the right colours? Write, or phone Elland 2852, for free advice.
NU-SWIFT LTD. • ELLAND • YORKS
In Every Ship of the Royal Navy

"KLEENOFF" *
THE COOKER CLEANER
"KLEENOFF"
FIBRE BRUSHES
RUBBER MOPS
KETTLE DESCALER *
(NEW "KLEENOFF" PRODUCT)
* *For resale to the public, and in bulk for Works use*
BALE & CHURCH, LTD.
7, CROMPTON WAY, CRAWLEY, SUSSEX.

OXIDE

DUTCH AND DANISH BOG ORE
SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873

PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

THE "FLUXITE QUINS" AT WORK

"Our lad's the one we must watch
There's very few jobs he can't botch.
When you ask for FLUXITE
He brings that all right,
But this blow-lamp he's filled with our Scotch".

For all SOLDERING work—you need FLUXITE—the paste flux—with which even dirty metals are soldered and "tinned." For the jointing of lead—without solder and the "running" of white metal bearings—without "tinning" the bearings. It is suitable for ALL METALS—excepting ALUMINIUM.

With Fluxite, joints can be "wiped" successfully that are *impossible* by any other method.

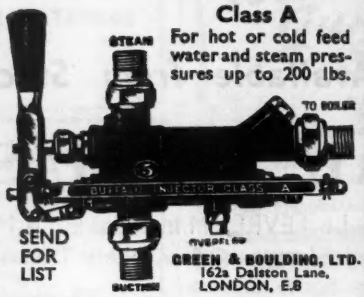
FLUXITE has been used for over 40 years in the Government Works and by the leading Engineers and Manufacturers. OF ALL IRONMONGERS—in tins—From 1/- upwards.

FLUXITE
SIMPLIFIES *ALL* SOLDERING

Write for Leaflets on CASE HARDENING STEEL and TEMPERING TOOLS with FLUXITE also on "WIPED JOINTS".
Price 1½d. each.

Fluxite Ltd. Bermondsey Street, S.E.1

BUFFALO INJECTORS



Class A
For hot or cold feed water and steam pressures up to 200 lbs.

SEND FOR LIST

GREEN & BOULDING, LTD.
162a Dalston Lane,
LONDON, E.8

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

WORKS ENGINEER required for Gas Works in India. Make 4 million cu. ft. per day. Age 35-45. Salary and allowances equivalent of £1,600 per annum, plus Provident Fund. Passages paid out and home. Residential accommodation available on the Works at reasonable rental. Applicants must be fully experienced in all aspects of production especially with Horizontal Retorts. Appointment, in first instance, for three or five years. Applications, stating full particulars of qualifications, experience, present position, age and whether married or single to be sent within fourteen days of publication of this advertisement to: No. 127, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

NORTH WESTERN GAS BOARD
FYLDE GROUP
DISTRICT SERVICE MANAGER—
LYTHAM AND ST. ANNES-ON-SEA DISTRICT.

APPLICATIONS are invited for the above position at a salary within Grade A.P.T. X (£645-£745 per annum).

The successful applicant will be responsible to the General Manager for the supervision and control of the two Showrooms and for the personnel involved in maintaining and developing consumer service. He may be required to pass a medical examination and to subscribe to such superannuation scheme as the Board may adopt.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board, (Fylde Group), Princess Street, Blackpool within fourteen days.

WALES GAS BOARD
PONTYPOOL UNDERTAKING
GAS FITTERS

APPLICATIONS are invited from FIRST CLASS GAS FITTERS for employment at the above Undertaking.

Preference will be given to candidates possessing the City and Guilds full Technological Certificate in 'Gasfitting.'

The rates of pay will be in accordance with J.I.C. schedules for Provincial 'A' Undertakings.

Applications stating age, qualifications with full details of experience and training to be addressed to J. Powdrill, Esq., General Manager, Wales Gas Board (Pontypool Undertaking), Gas Offices, Hanbury Road, Pontypool.

WALES GAS BOARD
PONTYPOOL UNDERTAKING
SHIFT SUPERINTENDENT

APPLICATIONS are invited for the position of SHIFT SUPERINTENDENT at the above Undertaking. Candidates should preferably have had experience on Woodall-Duckham Continuous Vertical Retorts, and have had technical training in all gasworks ancillary plant and equipment. Preference will be given to candidates holding the Institution of Gas Engineers' Higher Grade Certificate in Gas Engineering. The salary will be within Grade VI—Administrative, Professional and Technical of the National Joint Council for Gas Staffs—Provincial 'A' £475-£555 per annum, plus housing accommodation, rent free, which will be provided by the Undertaking. The successful candidate will be required to pass a medical examination.

Applications stating age, qualifications and experience with two recent Testimonials should be posted to J. Powdrill, Esq., General Manager, Wales Gas Board (Pontypool Undertaking), Gas Offices, Hanbury Road, Pontypool, not later than fourteen days after the appearance of this advertisement.

WALES GAS BOARD
PONTYPOOL UNDERTAKING
TECHNICAL ASSISTANTS/RELIEF
SHIFT SUPERINTENDENTS

APPLICATIONS are invited from suitable young men between the ages of 20/25 to be trained for the above appointments.

Applicants should have had previous experience in the laboratory of a Gas Works, or be conversant with the control of Gas Works Plant, or have a sound knowledge of mechanical engineering. They should have received a good general education to enable them to complete The Institution of Gas Engineers' examinations. Educational facilities are available and allowances for part time courses will be granted.

The starting salary will be according to age, qualifications and experience.

Applications, stating age, education and experience, with the names of two referees, should be posted to J. Powdrill, Esq., General Manager, Wales Gas Board (Pontypool Undertaking), Gas Offices, Hanbury Road, Pontypool, to reach him within fifteen days of the appearance of this advertisement.

WEST MIDLANDS GAS BOARD
BIRMINGHAM AND DISTRICT DIVISION
COST ACCOUNTANT—
BIRMINGHAM DISTRICT

APPLICATIONS are invited for the above position, which is within the salary range £885 x £50 to £1,085 per annum.

The duties include responsibility for costing policy, the maintenance of costing, contract and other records, the preparation of cost statements, revenue and capital budgets and the presentation of information to the management. Assistance in the preparation of the financial accounts and the verification of claims for increased costs on contracts together with investigations into special problems will also be required.

The possession of a recognised professional qualification is essential and knowledge of punched card methods of accounting will be advantageous.

The post is superannuable and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications, training and experience, together with the names of two referees, should be addressed to the Industrial Relations Officer, West Midlands Gas Board, 6, Augustus Road, Birmingham, 15, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

PLANT WANTED

WANTED: SCRAP TYRES—We are interested in purchasing on inspection at top market prices, large or small lots anywhere in the United Kingdom.—Ferdix Rubber (London), Ltd., Rowland House, 6, Eldon Street, London, E.C.2. *Tel.*: BIShopsgate 2010.

WANTED:—REGULAR SCRAP GAS METERS AND PARTS. Best prices paid. Offers to:—Mitcham Smelters Ltd., Red House Road, Croydon, Surrey. *Tel.*: THOrnton Heath 6101 (Private Branch Exchange).

UNDERPRESSURE ENGINEERING CO., LTD.

UNION FOUNDRY, MANSFIELD, NOTTS.

ALL TYPES OF DISTRIBUTION MATERIAL IN STOCK

UNDERPRESSURE CONNECTIONS
SPLIT COLLARS
SOCKET CLIPS

CENTRAL ACTION DRILL STANDS
SERVICE CLEANSERS
TOOLS, ETC.

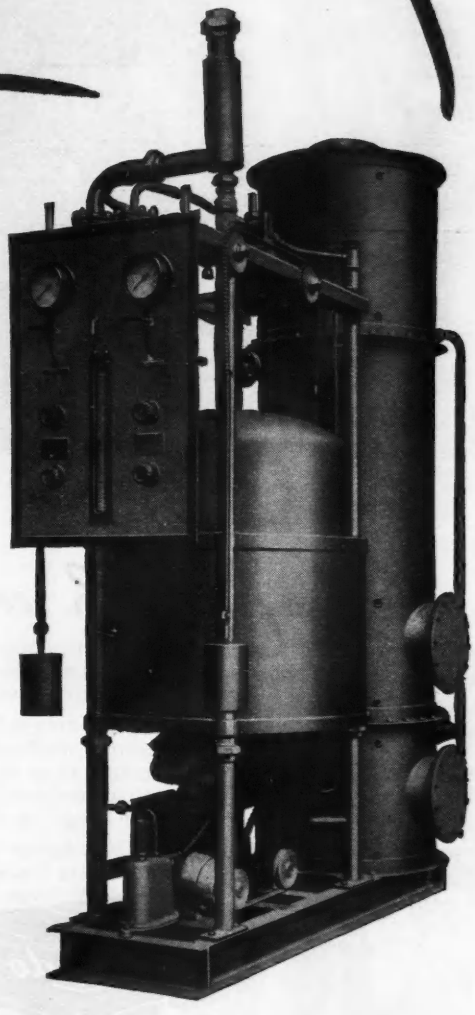
Service Enquiries:
STAFFORD HOUSE, NORFOLK STREET, STRAND, W.C.2.
'Phone: MANSFIELD 1256. *'Grams:* CASTINGS, MANSFIELD.
'Phone: TEMPLE BAR 9910. *'Grams:* WASHER, ESTRAND, LONDON

Your

MODERN GAS SUPPLY

at the touch of a button!

The Holmes-Mallet Plant illustrated delivers 6-8000 cu. ft. per hour of a mixture of butane and air which can be used for domestic or industrial purposes.



ADVANTAGES

- The plant is simple and can be supervised by one operative.
- It is arranged for manual push button stop and start or controlled automatically from holder.
- The calorific value of the mixture can be altered to suit requirements, and will be constant at any one setting.
- The plant occupies little space.
- It is designed to comply with Government Safety Regulations.

The HOLMES-MALLET BUTANE/AIR PLANT

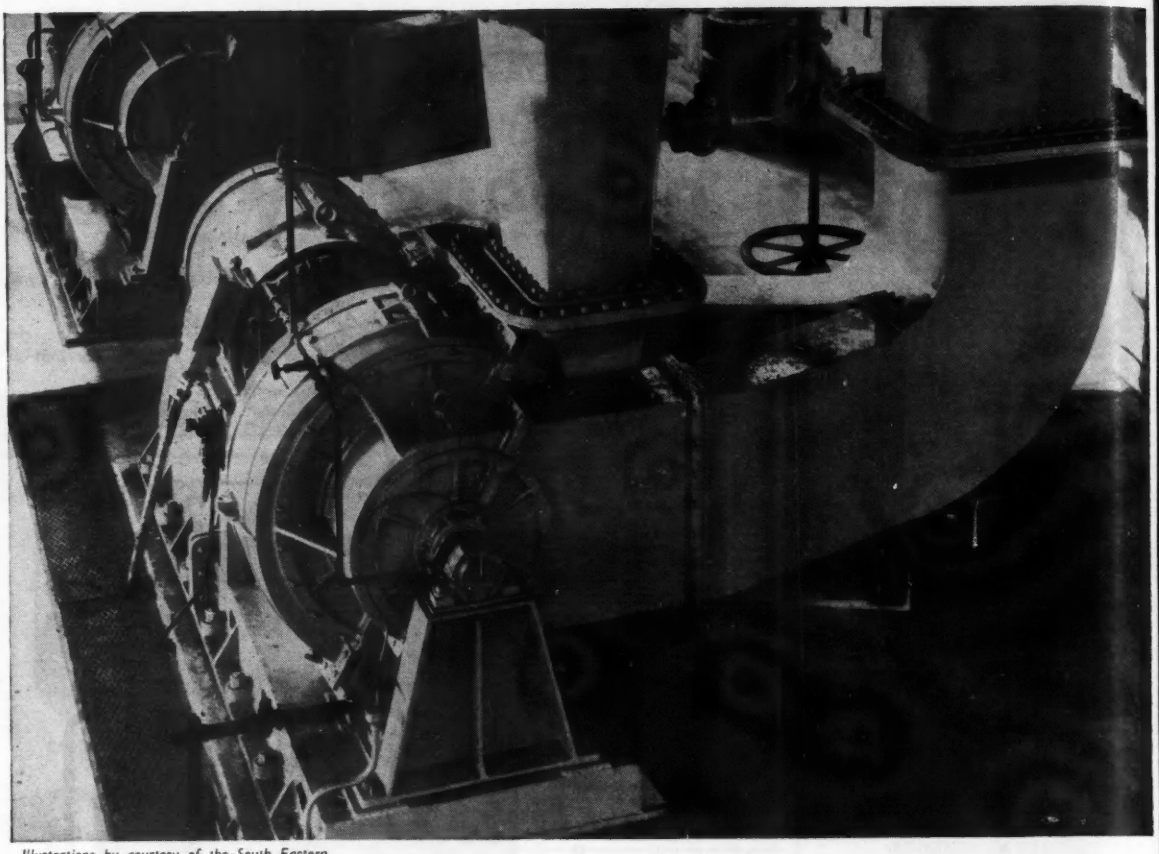
W. C. HOLMES & CO. LTD.

FOUNDED 1889 HOLMES HUDDERSFIELD

HUDDERSFIELD • LONDON • BIRMINGHAM

Tel: Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

C1678



Illustrations by courtesy of the South Eastern Gas Board and Messrs. Humphreys & Glasgow Ltd.

Gas Boosting *

Part of an installation at the East Greenwich Gas Works for the supply of South London's gas are the "TORNADO" gas boosters illustrated above. Each is capable of shifting over a million cubic feet of producer gas an hour, and each was supplied with cast iron gas tight casings with detachable segments for easy servicing, stainless steel impeller and shaft, self aligning roller bearings and flexible couplings. One of the boosters was arranged for motor drive and the other for steam turbine.

*

LARGE ILLUSTRATION: *42" type 9 double width double inlet gas boosters.*

DUTY: 1,010,000 c.f.h. producer gas at 60°F. Sp.gr. ·907 (air=1) raised to 104°F. saturated giving ·28" w.g. differential over inlet and outlet connections taking 138 H.P.

SMALL ILLUSTRATION: *40" type 15 air blowers.*

DUTY:	*Closed outlet*	*Delivery*
Air quantity	*nil*	*12830 c.f.m.*
Speed r.p.m.	*1480*	*1475*
Static pressure	*15.8" w.g.*	*13" w.g.*
Power absorbed	*13 B.H.P.*	*39 B.H.P.*

FAN ENGINEERING AND INDUSTRIAL GAS EQUIPMENT

We are manufacturing gas boosters which cover a range of from 5,000 to 1,500,000 cubic feet per hour, and if you are concerned with the movement of air or gas, ask us to send you Publication No. 5/8, a survey of the standard range of "TORNADO" high pressure blowing and exhausting fans.

Keith Blackman LIMITED

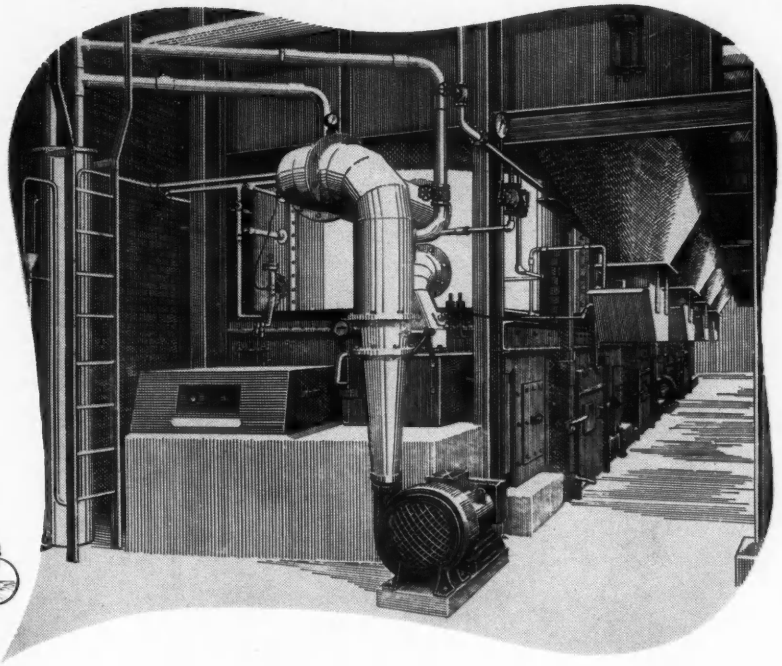
MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

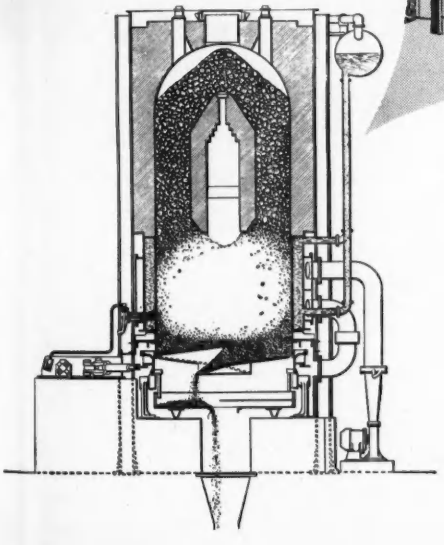
'Phone: Tottenham 4522 (twelve lines). 'Grams: "Keithblac, Norphone, London."

434/12/GJ

Printed by Straker Brothers Ltd., E.C.2, for Walter King, Limited, 11, Bolt Court, Fleet Street, London, E.C.4. Wednesday, October 15, 1952

less labour, less fuel –
and the GAS STAYS HOT





West's "Hot Gas" Mechanical Producer

does more than eliminate manual clinkering. It has a hot gas efficiency of 90% and shows a marked reduction in the combustible content of the ashes. That, in turn, means fuel economy.

Producer and dust extractor are enclosed in a heavily insulated steel casing. The gas offtake, situated centrally immediately over the flare bed, draws off gas at formation temperature and is completely insulated, so that full advantage is taken of the sensible heat conveyed DIRECT to the settings. Dust extraction efficiency is up to 90%.

To maintain a constant depth of ash below the fuel bed, the speed of the revolving helical grate which removes the ash is automatically controlled by a novel device.

West's Gas
IMPROVEMENT CO. LTD.

ALBION IRONWORKS · MILES PLATTING · MANCHESTER 10

Telephone: COLlyhurst 2961. Telegrams: Stoker, Manchester.

London Office: Columbia House, Aldwych, W.C.2. Phone: HOLborn 4108-9 Grams: Wesgasco, Estrand.

NCB The layout illustrated shows a tandem turnout providing a ladder of sidings at the Primrose Hill Unit of the National Coal Board, by whose courtesy the photograph is reproduced.

Because we take a pride in our undertakings relative to their size and importance, there is a tendency for us to feature our bigger contracts whenever we choose a photograph to illustrate our work. Nobody would gainsay us this very human privilege.

Nevertheless, there are always dozens of smaller jobs in progress all over the country in which we take no less pride—jobs which, relatively small though they be, still carry the unmistakable stamp of planned construction which characterises every Ward-built siding, no matter what its size or complexity.

The Railway Siding Consultants and Contractors

THOS. W. WARD LTD

ALBION WORKS · SHEFFIELD

TELEPHONE: 26311 (22 Lines) · TELEGRAMS: "FORWARD SHEFFIELD"

LONDON OFFICE: BRETTENHAM HOUSE · LANCASTER PLACE · STRAND · WC2

SC 21